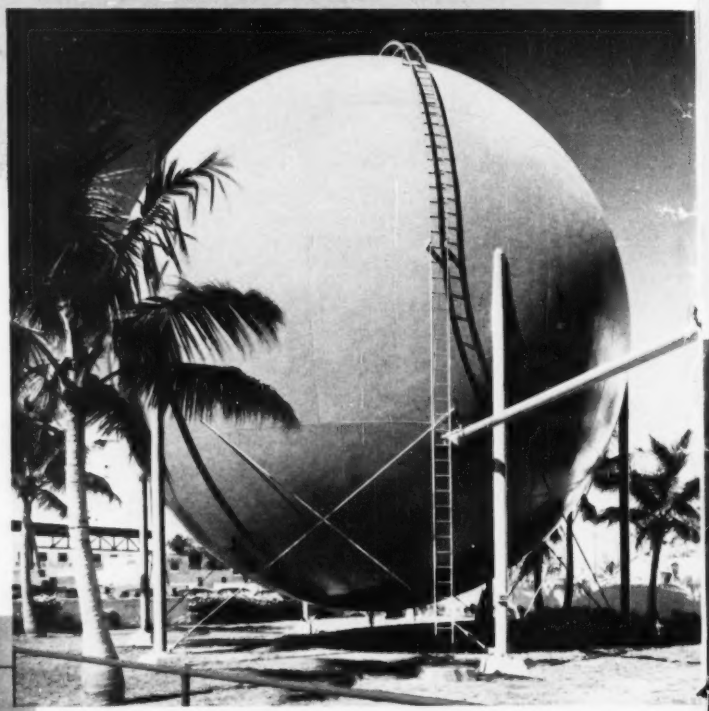
ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION

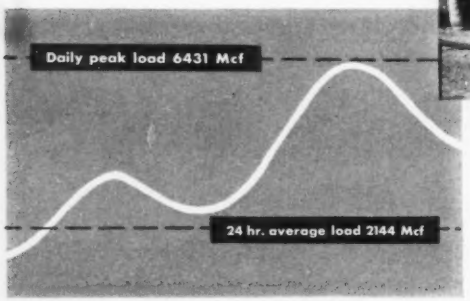
MEETING PEAK GAS DEMANDS IN MIAMI



Metropolitan Miami has about the fastest growing population of any area in the country. Census figures put the total in excess of 300,000.

Supplying gas to these people could present a problem to the Florida Power & Light Company. Peak daily loads, as shown on the chart below, sometimes reach 6,431 Mcf. This trebles the normal load of 2,144 Mcf.

The Florida Power & Light Company has, however, met the situation by installing a Hortonsphere to store a reserve supply of gas under pressure to be released when gas production and other storage facilities are unable to meet the demand. No costly new gas production facilities were required because the Hortonsphere is filled during low load periods!



Hortonspheres have several operational and maintenance advantages. They require a minimum amount of ground space for a given amount of storage. There is only one set of pipe connections . . . and the gas in storage is easily measured by an ordinary pressure gauge.

Hortonspheres are built in sizes from 22 ft. 3 in. to 76 ft. 3 in. in diam.

CHICAGO BRIDGE & IRON COMPANY

Atlanta, 3 . . . . . 2125 Healey Building
Birmingham, 1 . . . . . 1520 North 50th Street
Boston, 10 . . . . . 1012—201 Devonshire Street
Chicago, 4 . . . . . 2101 McCormick Building
Cleveland, 15 . . . . . 2201 Guildhall Building
Detroit, 26 . . . . . 1506 Lafayette Building
Havana . . . . . 402 Abreu Building
Houston, 2 . . . . . 2109 National Standard Building
Los Angeles, 17 . . . . . 1511 General Petroleum Building
New York, 6 . . . . . 3311—165 Broadway Building
Philadelphia, 3 . . . . . 1623—1700 Walnut St. Building
San Francisco, 4 . . . . . 1530—200 Bush Street
Seattle, 1 . . . . . 1312 Henry Building
Tulsa, 3 . . . . . 1617 Hunt Building
Washington 6, D. C. . . . . 1152 Cafritz Building

Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY, and GREENVILLE, PA.

In Canada: HORTON STEEL WORKS, LIMITED, FORT ERIE, Ont.

NEW!
THE TR 200
REAR DUMP
MOTOR WAGON

TR 200 MOTOR WAGON
SPECIFICATIONS

Here's your *NEW* LaPLANT-CHOATE *ROCK WAGON*

HERE'S a new addition to the well-known LaPlant-Choate line of Motor Wagons and Earthmovers. The 18-ton TR200 is a hydraulically-controlled rear dump wagon flexibly joined to the same big rubber-tired tractor so successfully used on the LaPlant-Choate TS200 Motor Scraper. It combines rugged power, big capacity and high speed with a host of other features to make this unit outstanding in its field.

FEATURES YOU'VE BEEN LOOKING FOR IN A REAR DUMP WAGON

Stable wheel base assures absolute safety when dumping over edge.

Rock Lug tires.

Protected cab.

Your choice of two diesel engines in the T 200 Tractor . . . a 176 HP Buda or a 165 HP Cummins.

No obstructions in the wagon body.

Tilts to 70° from horizontal.

Full hydraulic control.

Rear dump advantages.

Available with heated body for use in cold climate to prevent freezing of material in load.

GENERAL

CAPACITY
- Struck, cu. yds. 11
- Heaped, cu. yds. 15
- Tons 18

OVERALL DIMENSIONS
- Length ..... 25'9"
- Width ..... 10'7"
- Height ..... 10'0"

WHEEL BASE ..... 13'7"

WHEEL TREAD
- Tractor ..... 6'8"
- Wagon ..... 8'8"

TIRES ..... 4—21:00 x 25—24 ply rock lug

BRAKES
- 4-wheel air Timken-Detroit ..... 18" x 7"

TURNING
- Width required 180° turn ..... 31'3"
- Degree of turn each way ..... 60°

HYDRAULIC SYSTEM ..LPC Fluid Power Unit
- Steering—25 GPM ..... Model HU25
- Wagon operation—40 GPM..Model HU40

SHIPPING WEIGHT
- (Approx. in lbs.) 40,000

T200 TRACTOR

ENGINE
- Buda Diesel Model 6-DA-779 ..... 176 HP
- or
- Cummins Diesel Model HRB-600 .... 165 HP

ENGINE CLUTCH ..... 17" Lipe Rollway

TRANSMISSION ..... Fuller 5A1120

SPEEDS
- (at 1800 RPM—MPH) ..From 2.46 to 21.63

STARTING METHOD ..... Electric 24 V

AIR COMPRESSOR
- Bendix-Westinghouse..7¼ cu. ft. capacity

ELECTRIC SYSTEM ..... 12 V

FUEL TANK CAPACITY—U. S. gallons ..70

R200 WAGON

MISCELLANEOUS DIMENSIONS
- Loading height, rear ..... 5'6"
- Loading height, side ..... 8'3"
- Bowl width ..... 8'0"
- Bowl depth, maximum ..... 4'8"
- Bowl length ..... 11'3"

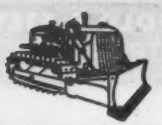
OPERATING METHOD
- Type of ejection ..... Rear dump, hyd. lift
- Number of jacks (double acting) 2
- Size of jacks ..... 8" x 31"

DUMPING ANGLE ..... 70°

LAPLANT-CHOATE
MANUFACTURING CO., INC.
CEDAR RAPIDS, IOWA, U. S. A.

Cable-operated Scrapers in 6-, 8- and 14-yd. sizes for all makes of truck-type tractors.

3- and 4-yd. Scrapers for truck-type and rubber-tired industrial tractors.

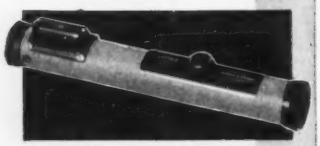


Hydraulic and Cable-operated Dozers.

LEUPOLD LEVELS

for CONVENIENCE and ACCURACY...

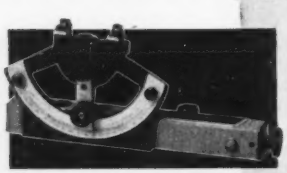
Performance tells...and since 1907 precision-engineered LEUPOLD instruments have been used the world over. When you use LEUPOLD Levels you are assured of the greatest accuracy modern research and manufacturing can produce — plus time-saving convenience and versatility which no similar products can give.



LEUPOLD HAND LEVEL

Accuracy and convenience in a small package! This practical, easy-to-use Level measures 5¼ inches overall length with ¾ inch outside diameter. Exclusive LEUPOLD bubble magnifier adjusts internally to the user's eye, eliminating constant refocusing. Sealed against dust and moisture. Furnished in handsome saddle leather case.

$11.70



LEUPOLD ABNEY LEVEL

Exclusive patented design permits changing scales without removing and reversing the frame. Thumb screws hold all scales in milled slide, and any scale can be quickly superimposed on others for immediate use.

Bubble magnifier adjusts internally to the user's eye, eliminating the need to refocus every time the Level is removed from its case. Thumb nut index arm adjustment provides micrometer accuracy. Radius of arc, 1¾ inches. Overall length, 6½ inches. Furnished in heavy leather case with belt loop. *Four scales available: per cent, topographic, degrees or chainage corrections.*

MODEL A (Choice of any 2 scales) **$27.50**
MODEL B (Choice of any 3 scales) **$30.00**

MAIL THIS COUPON TODAY

Enclosed is ☐ check or ☐ money order for $_____
Please send the LEUPOLD Level checked below.
_____ The HAND LEVEL @ $11.70.
_____ The ABNEY Model A @ $27.50.
_____ Model B @ $30.00. (List choice of scales.)
Send literature on ☐ LEVELS ☐ COMPASSES.
NAME_____
ADDRESS_____
CITY_____ ZONE____ STATE_____

LEUPOLD & STEVENS INSTRUMENTS, INC.
PORTLAND 13, OREGON

ENGINEERING NEWS-RECORD

Member ABC ABP

Volume 148 MAY 1, 1952 No. 18

WALDO G. BOWMAN
Editor

FEATURES IN THIS ISSUE

Quenching industry's thirst ..... Arthur J. Fox, Jr. 66

Stop-gap water supply 73

Turnpike, bridge planning active 76

Glass-walled skyscraper 79

DEPARTMENTS

Reader Comment	11	Meetings	64
Construction Trends	17	Men and Jobs	88
Construction Week	19	Obituaries	92
News of the Week	21	Construction Business	107
Labor	29	Unit Prices	114
Municipal	36	Construction Reports	117
International	51	New Products	130

Editorials 136

Number of copies of this issue printed, 53,087

Managing Editor—Eugene E. Halmos, Jr.

Associate Editors—*New York*, V. T. Boughton (senior associate), J. M. Connolly, R. H. Dodds, F. S. Merritt, Arthur J. Fox, Jr., Ken Maxcy; *Chicago*, J. R. Carr; *San Francisco*, L. L. Wise; *Washington*, V. B. Smith.

Assistant Editors—*New York*, Clyde Henning; T. D. MacGregor, Abner A. Layne.

Staff Assistants—Phyllis Robins, *Research*; Ethel Lyon, Henry G. Compton, *Makeup*; Leo Tarpey, *Printing*; Madalene Smith, Edward McLain, *Editorial*.

Business News—Elsie Eaves, *Manager*; J. A. Mahoney, M. Wetzel, *Reports*; J. H. Webber, M. W. Roessler, E. M. Huber, *Statistics*; C. R. Miner, *Research*.

Contributing Editor—N. A. Bowers.

Domestic News Bureaus—Atlanta, Chicago, Cleveland, Detroit, Houston, Los Angeles, San Francisco, Washington. Correspondents in 71 cities in the United States, Canada and Mexico.

Foreign News Bureaus—London, Frankfurt, Paris, Moscow, Tokyo, Bombay, Melbourne, Rio de Janeiro, Mexico City. *Correspondents*—Athens, Rome, Caracas, Buenos Aires, Santiago, Shanghai, Zurich, Johannesburg and 40 other cities.

ROBERT F. BOGER
Publisher

May 1, 1952 **ENGINEERING NEWS-RECORD** **Vol. 148—No. 18**
Member ABC and ABP

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948) Founder. **Publication Office, 99-129 North Broadway, Albany 1, N. Y.**

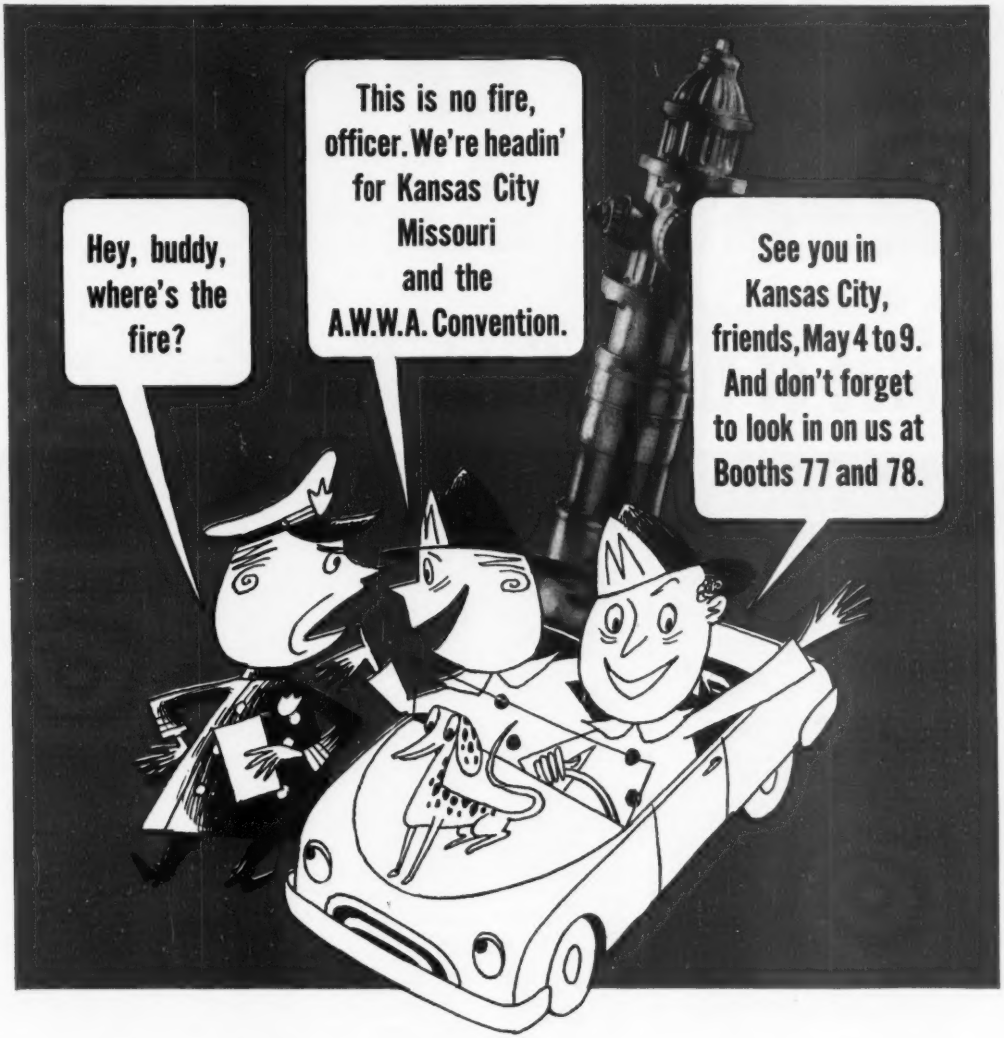
Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Engineering News-Record—Subscription Service, 99-129 North Broadway, Albany 1, N. Y., or 330 W. 42nd St., New York 36, N. Y. Allow ten days for change of address.

Subscriptions are solicited only from persons with an identifiable commercial or professional interest in construction and building. Position and company connection must be indicated on subscription orders.

Single copies 35¢. Subscription rates—United States and possessions, $6.00 a year; $9.00 for two years; $12.00 for three years. Canada, $8.00 a year; $12.00 for two years; $16.00 for three years. Other Western Hemisphere countries, $15.00 a year; $25.00 for two years; $30.00 for three years. All other countries, $20.00 a year; $30.00 for two years; $40.00 for three years. Entered as second class matter October 29, 1926, at the Post Office at Albany, N. Y., under Act of Mar. 3, 1879. Printed in U. S. A.

Copyright 1952 by McGraw-Hill Publishing Co., Inc.—All Rights Reserved.


Hey, buddy, where's the fire?
This is no fire, officer. We're headin' for Kansas City Missouri and the A.W.W.A. Convention.
See you in Kansas City, friends, May 4 to 9. And don't forget to look in on us at Booths 77 and 78.

MATHEWS HYDRANTS

Made by R. D. Wood Company

Public Ledger Building, Independence Square
Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

"Big Red"

Choice of the Nation's Fleet Owners*

EVERY CONTRACTOR LISTED HERE OWNS A

GENERAL CONTRACTORS

NAME	
Abernathy, Y. J.	Memphis, Tennessee
Ace Construction Company	Omaha, Nebraska
Ames Construction Company	Oklahoma City, Oklahoma
Anderson & Gregory	Nashville, Tennessee
Arborio, Inc., John	Poughkeepsie, New York
Armston Company, W. H.	Dunedin, Florida
Armstrong Company, J. D.	Ames, Iowa
Arufe Brothers	Meridan, Connecticut
Asphalt Paving Company	Jacksonville, Florida
Atkinson, Guy F.	San Francisco, California
Atlas Constructors	New York City, New York
Barr & Company, Roy L.	Spokane, Washington
Beard Construction Co.	Shelton, Connecticut
Best and Bartell	Cincinnati, Ohio
Bianchi and Co., Inc., C.	Framingham, Massachusetts
Blaw-Knox Construc. Company	Pine Bluff, Arkansas
Bloomer & Son, John S.	Appleton, Wisconsin
Blythe Bros. Company	Charlotte, North Carolina
Braden Constr. Company	Griswold, Iowa
Brewster & Son, Inc., G. M.	Bogota, New Jersey
Brown Brothers	Memphis, Texas
Brown Construction Company	Pueblo, Colorado
Brown Constr. Co., G.	Glenburn, California
Brown and Root, Inc.	Houston, Texas
Broyhill & Sons, M. P.	Arlington, Virginia
Campanella & Cardi	Hillsgrove, Rhode Island
Campbell & Collins	Fargo, North Dakota
Chessher, Ben	Kingsbury, Texas
Cianchette, J. R.	Pittsfield, Maine
Clarkson Constr. Company	Kansas City, Missouri
Collins and Sons, Wm.	Fargo, North Dakota
Construction Aggregate	Newark, New Jersey
Cordell & Johnson	San Diego, California
Crawley Constr. Co., P. E.	Cambridge City, Indiana
Daufenbach, Wm.	Mankato, Minnesota
Davis Construction Corp.	Hicksville, Long Island, N. Y.
Dickinson, W. M.	So. Charleston, West Virginia
Delta Drainage & Const. Co.	Greenville, Mississippi
DeNicola Contracting Co.	Garden City Park, L. I., N. Y.
DeSalvo Construction Co.	Redwood City, California
DeShong, Leno	Plant City, Florida
Dewoss Brothers	Grand Island, Nebraska
Dickerson & Winkleman Co.	Savannah, Georgia
Easley Construction Co.	Marion, Kentucky
Eckdahl, Hilding	Cumberland, Iowa
Farino Equipment Company	Jamaica, L. I., New York
Fisher Construction Co.	Cincinnati, Ohio
Fisher Contracting Co.	Phoenix, Arizona
Foley Brothers	St. Paul, Minnesota
F and S Contracting Co.	Butte, Montana
Fuller-Davies	Newport, Kentucky
Funderburk Constr. Company	Arlington, Washington
General Construction Co.	Seattle, Washington
Gibbons & Reed Const. Co.	Salt Lake City, Utah
Gilbane Building Co., Inc.	Providence, Rhode Island
Gilbert Engineering Co.	Statesville, North Carolina
Gilliland, William	Alpena, Michigan
Gillespie, John and Paul	Grand Rapids, Michigan
Good Construction Co., C. W.	Lancaster, Pennsylvania
Granite Construction Co.	Watsonville, California
Gray, Inc., Leo C.	Dewitt, New York
Green Construction Company	Oaktown, Indiana
Griffis, Wm. C.	Bagley, Minnesota
Griffith Company	Los Angeles, California
Guthrie Constr. Company	Spokane, Washington
G and Z Contracting Co.	Memphis, Tennessee
Hable, E. W.	Corsicana, Texas
Hall, Fred	Valley Mills, Texas
Halverson Construction Co., C. M.	Portland, Oregon
Halverson Const. Co., H.	Spokane, Washington
Hamann, Walter	Richardton, North Dakota
Harlan Construction Co.	Republican City, Nebraska

GENERAL CONTRACTORS

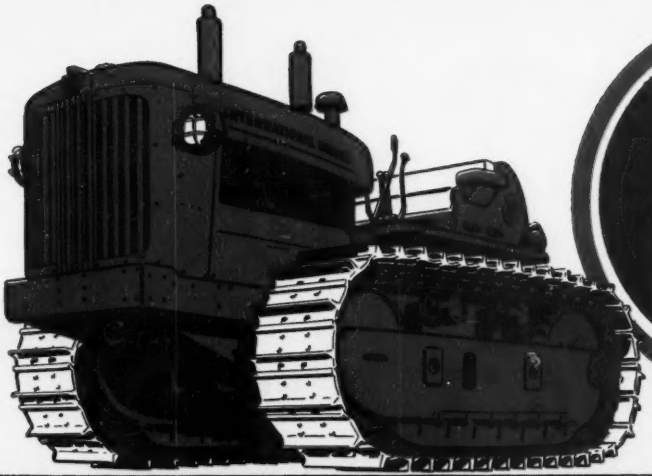
NAME	
Hawthorne, Robert	Philadelphia, Pennsylvania
Hendrickson Brothers	Valley Stream, L. I., N. Y.
Hertford Construction Co.	Hertford, North Carolina
Hicks, Harry D.	San Gabriel, California
Hile, Henderson	Bardstown, Kentucky
Higham and Wondra	Blooming Prairie, Minnesota
Hodgman and Son, W.	Fairmont, Minnesota
Holloway and Thompson	Detroit, Michigan
Hubner, C. L.	Denver, Colorado
Hulme Constr. Co., Charles	Great Bend, Kansas
Hunt Constr. Co., Arlon	East Omaha, Nebraska
Hunter Construction Co.	Ada, Oklahoma
Inter-City Sand & Gravel Co.	Eugene, Oregon
James Constr. Co., Guy	Oklahoma City, Oklahoma
Jarrell, L. L.	Whistler, Alabama
Jeffers, Inc., P. R.	Toledo, Ohio
Jurgensen, John	Newton, Ohio
Kawano and Nishida	Hilo, Territory of Hawaii
Keeler Construction Company	Clarksburg, West Virginia
Kluck Construction Company	Appleton, Wisconsin
Kraus Company, Samuel	St. Louis, Missouri
Kuykendall, Crockett	Cotulla, Texas
Kuykendall, J. A.	Cotulla, Texas
Langenfelder & Son, Inc., C. J.	Baltimore, Maryland
Langsy, Robert	Brenham, Texas
Latin-American Eng'g Service	San Antonio, Texas
Lee-Union Contractors	Noxon, Montana
Lively & Lindsay	Durango, Colorado
Logan & Sons, W. E.	Muskogee, Oklahoma
MacDougald Constr. Company	Atlanta, Georgia
Mackie Const. Co., Arthur	Baltimore, Maryland
Madison Constr. Company	Edwardsville, Illinois
Mahoney, J. T.	St. Louis, Missouri
Mangum, C. C.	Raleigh, North Carolina
Mauer and Otto	Sac City, Iowa
McCarthy-Pohl Constr. Co.	Nevada, Missouri
McDearmon, George	Erwinville, Louisiana
McDonald and Kruse	Los Angeles, California
McGraw Construction Company	Middletown, Ohio
McGraw & Company, F. H.	Paducah, Kentucky
McHarg, Foster	Riverside, California
McIver Construction Company	Sinton, Texas
McKee Construction Company	Jackson, Alabama
Metcalfe-Hamilton Company	New York City, New York
Miller Excavating Company	Omaha, Nebraska
Millis Construction Company	Omaha, Nebraska
Mills Company, Ralph E.	Salem, Virginia
Mittry Constructors	Los Angeles, California
Moorman & Son, J. W.	Muskogee, Oklahoma
Morrison-Knudson Const. Co.	Boise, Idaho
Morrissey, Inc., James D.	Philadelphia, Pennsylvania
Moss-Thornton Co., Inc.	Leeds, Alabama
Muehlenbeck, Wm. J.	Saginaw, Michigan
Mulligan Brothers	Greenville, Kentucky
Nelson, W. F.	San Diego, California
North Atlantic Constructors	New York City, New York
Oahu Construction Company	Honolulu, Territory of Hawaii
Oliver, Russell	Cotburn, Idaho
Olson & Sons, G. A.	Marshall, Minnesota
Osburn & Co., Inc., H. T.	Franklin, Pennsylvania
Patterson Construction Co.	Monongahela, Pennsylvania
Perry Construction Company	Scranton, Pennsylvania
Petrillo, Inc., Edward	Yonkers, New York
Pioneer Constructors	Tucson, Arizona
Pohl Constr. Co., Jos. L.	St. Louis, Missouri
Pool Construction Company	Shawnee, Oklahoma
Porter-DeWitt Constr. Co.	Poplar Bluff, Missouri
Price, Osborne, Osborne, & Molson	Lynchburg, Tennessee
Pullen and Owens	Nashville, Tennessee
Rankin and Williams	Pearsall, Texas
Rapone Contracting Company	Hicksville, L. I., New York
Rayn & Sons, P. W.	Janesville, Wisconsin

GENERAL CONTRACTORS

NAME	
Rexroth & Rexroth	Bakersfield, California
Rider, Orval	Yuma, Arizona
Ruby Construction Company	Madisonville, Kentucky
Ruth Construction Company	Scottdale, Pennsylvania
Rutherford Corporation	Oakland, California
Ryan Construction Company	Evansville, Indiana
Salvucci, Peter	Waltham, Massachusetts
Serafini Constr. Co., Inc.	Binghamton, New York
Savin Constr. Co., A. I.	East Hartford, Connecticut
Scheel, Ralph D.	Del Norte, Colorado
Schlessinger and Patterson	Chandler, Arizona
Schulz Contracting Co., John	Garden City Park, L. I., N. Y.
Scott, Inc., W. H.	Franklin, Virginia
Sharrock & Pursel	Casper, Wyoming
Silver State Constr. Co.	Fallon, Nevada
S & M Construction Co., Inc.	Providence, Rhode Island
Smalley, D. R.	Sabina, Ohio
Smith Construction Company	Pelham, New York
Smith, Odie, and Smith	Muskogee, Oklahoma
Snare Corporation, Frederick	New York City, New York
Soto Constr. Company, Jos.	San Jose, California
Steers Grove	New York City, New York
Steinkamp, Inc., E.	Los Angeles, California
Stewart, Howard	Brookville, Indiana
Stone City Constr. Company	Bedford, Indiana
Stovall, R. B.	Dallas, Texas
Stuart, J. O. and C. M.	Washington, D. C.
Suttenfuss, James	Blanco, Texas
Tangmo Construction Company	Missoula, Montana
Teer Company, Nello L.	Durham, North Carolina
Teichert & Son, Inc.	Sacramento, California
Tenaka, J. M.	Hilo, Territory of Hawaii
Texas Construction Company	Dallas, Texas
Thompson, C. G.	Paris, Texas
Thornburg, Vance	Payonia, Colorado
Tomlinson, T. R.	Doyline, Louisiana
Torrington Construction Co.	Onaonta, New York
Tower Contracting Co., Doug	Homestead, Florida
Trisdale, Inc., J. H.	Martin City, Montana
Turpin & Stewart	Cincinnati, Ohio
Vacalllo and Grogan	Beckley, West Virginia
Vinnoli United Bell Company	Trenton, Nebraska
Wartes, Lacy	Lubbock, Texas
Wernimont, John	Auburn, Iowa
Wester Construction Co.	Buggs Island, North Carolina
White Oak Excavators	Plainville, Connecticut
Winkelman Co., Inc., D. W.	Syracuse, New York
Wright Contracting Company	Columbus, Georgia
Wright, John D.	Talco, Texas
Wyner & Company, Inc., Gl	Malden, Massachusetts
Zara Contracting Company	Hewlett, L. I., New York

MINING

NAME	
Allen Brothers	Oliver Springs, Tennessee
A & H Coal Co.	Shinnston, West Virginia
A. & P. Mining Co.	Enterprise, West Virginia
Bitner Fuel Co.	Jane Lew, West Virginia
Blair & Oldham Construction Co.	Pound, Virginia
B & M Coal Co.	Weedville, Pennsylvania
Bolling Construction Co.	Pound, Virginia
Bortz & Bortz Coal Co.	Stoneboro, Pennsylvania
Bowling, Tyler	Bluefield, West Virginia
Brown, Earl M.	Clearfield, Pennsylvania
Calvert & Youngblood	Trafford, Alabama
Casella Coal Co.	Buchannon, West Virginia
Cleghorn, L. E.	Clarksburg, West Virginia
Cleveland Cliffs Mining	Nashwauk, Minnesota
Coal Strippers, Inc.	Weston, West Virginia
Compass Coal Co.	Philippi, West Virginia
Consolidated Coal Co.	Jenkins, Kentucky



TD 24

FLEET OF BIG RED INTERNATIONAL TD-24s

MINING

NAME	
Coronet Phosphate Co.	Plant City, Florida
C. & P. Coal Co.	Fairmont, West Virginia
Daugherty Coal Co.	Terra Alta, West Virginia
Deanville Coal Co.	Weston, West Virginia
Drummond Coal Co., H. E.	Jasper, Alabama
Ford & Gaskill	Greensboro, Pennsylvania
Galloway Coal Mining Co.	Carbon Hill, Alabama
Georgia Kaolin Co.	Atlanta, Georgia
Greasy Ridge Coal Co.	Ironton, Ohio
Hanna Coal Co.	Adena, Ohio
Hanna Co., M. A.	Hibbing, Minnesota
Hazelwood, George F.	Cumberland, Maryland
Imperial Coal and Construction Co.	Rupert, West Virginia
Kelly Coal Co.	Beelick Knob, West Virginia
Liles and Son, H. B.	Winona, West Virginia
Mays Coal Co.	Clarion, Pennsylvania
McCarrell & Grimes	Sanders, Arizona
McComas Berkley	Scottown, Ohio
Michigan Limestone & Chemical Co.	Rogers City, Michigan
Mottern, Harry	Liberty, Pennsylvania
Nashville Coal Co.	Nashville, Tennessee
New Shawmut Mining Co.	Wendsville, Pennsylvania
Ohio River Collieries	Columbus, Ohio
Oliver Iron Mining Co.	Coleraine, Hibbing & Va., Minn.
Pendergrass, Zeb	Rainelle, West Virginia
Phelps Dodge Corp.	Douglas, Arizona
Pickands-Mather Co.	Hibbing, Minnesota
Putman & Greene	Osceola Mills, Pennsylvania
Quinn, Ted	Sterling Run, Pennsylvania
Rardin Bros.	Akron, Ohio
R. & V. Contracting Co.	Clarksburg, West Virginia
Sanbrac Coal Co.	Pittsburgh, Pennsylvania
S. B. & S. Co.	Pottsville, Pennsylvania
Scott Coal Co.	Clarksburg, West Virginia
Shetzer, Robert	Philippi, West Virginia
Sherman, Joe	Hawthorn, Pennsylvania
Snyder Brothers	Cowansville, Pennsylvania
Stripping Contractors	Clearfield, Pennsylvania
Trotline Bros., Inc.	Mt. Hope, West Virginia
Truax-Traer Coal Co.	Pinckneyville, Illinois
Usibelli Coal Mines	Healy River, Alaska
Wabash Ridge Corp.	Rossetes, Pennsylvania
Walls & Sons Coal Co., Charles	Oliver Springs, Tennessee
Whitaker Coal Co., H. B.	Norton, Virginia
Yates Coal Co.	Ashland, Kentucky

LOGGING

NAME	
Abaco Lumber Co.	Nassau County, Bahamas
Anderson, Mel	Weaverville, California
Arch Cape Logging Co.	Tillamook, Oregon
Arrow Mills	Eureka, California
Bohemia Lumber Co.	Cottage Grove, Oregon
Brown and Berri Timber Co.	Bodega Bay, California
Brown Tie and Lumber Co.	McCall, Idaho
Buck Mountain Logging Co.	Shelton, Washington
Cal-Ida Lumber Co.	Downieville, California
Cawrse Lumber Co.	Myrtle Point, Oregon

LOGGING

NAME	
Clackamas Logging Co.	Portland, Oregon
Coastal Plywood Co.	Cloverdale, California
Denny Logging Co.	Willamina, Oregon
DeVilbiss, C. Dudley	Ukiah, California
Fisch Logging Co.	Arcata, California
Flodin Lumber Co.	Thompson Falls, Montana
Ford, Donald A.	Ukiah, California
Freesch Oil Co.	Bonners Ferry, Idaho
Gooch Logging Co.	Lyons, Oregon
Hammond Lumber Co.	Trinidad, California
Hines Lumber Co.	Westfir, Oregon
Ladew Timber Co.	Orick, California
Long-Bell Lumber Co.	Vaughn, Oregon
Marenakos Logging Co.	Renton, Washington
Matheney, S. P.	Sublimity, Oregon
McCallie Logging Co., B. L.	Eugene, Oregon
McCallie Bros. Logging Co.	Lebanon, Oregon
McNutt Bros. Construction Co.	Eugene, Oregon
Michigan-California Lumber Co.	Camino, Calif.
Mortensen, Inc., Lee	Roseburg, Oregon
Neils Lumber Co., J.	Libby, Montana
N.S.P. Logging Co.	Coquille, Oregon
Opperman, Ralph	Qualala, California
Paul Bunyan Lumber Co.	Susanville, California
Portland Creek Logging Co.	Oakland, Oregon
Potlatch Forests, Inc.	Lewiston, Idaho
Razor Logging Co.	Eugene, Oregon
Rayonier, Inc.	Sapho, Washington
Russell & Sons, V. R.	Valsetz, Oregon
Russell & Gillette	Cle Elum, Washington
Schuler Construction Co., J. F.	Robbinsville, North Carolina
Siuslaw Forest Products Co.	Mapleton, Oregon
Smith Lumber Co., Ralph L.	Anderson, California
Smith, Ralph	Tillamook, Oregon
Snoqualmie Falls Lumber Co.	Snoqualmie Falls, Washington
Stoddard, Roy	Fort Bragg, California
Sweet Brothers Lumber Co.	Eugene, Oregon
Ulrich, William	Spokane, Washington
Union Lumber Co.	Fort Bragg, California
Vosburg & White	Alsea, Oregon
Westside Lumber Co.	Tuolumne, California
Weyerhaeuser Timber Co.	Tacoma, Washington
White River Lumber Co.	Enumclaw, Washington
Willamette Valley Lumber Co.	Dallas, Oregon
Wooley, Harold	Drain, Oregon

PIPELINE

NAME	
Anderson Brothers	Houston, Texas
Anderson Construction Co.	Salem, Illinois
Associated Pipe Line Corp.	Houston, Texas
Bechtel Corp.	San Francisco, California
Bishop and Lock	Dallas, Texas
Britton Contracting Co.	Washington, Pennsylvania
Borden Construction Co., O. R.	Wichita Falls, Texas

PIPELINE

NAME	
Fulton, R. H.	Lubbock, Texas
El Paso Natural Gas Co.	El Paso, Texas
Gentry Construction Co., N. L.	Jackson, Mich.
Mahoney Contracting Co.	Lansing, Michigan
Midwestern Constructors	Tulsa, Oklahoma
Morrison Construction Co.	Austin, Texas
Oklahoma Construction Co.	Dallas, Texas
Price Company, H. C.	Bartlesville, Okla.
Saigh Company, N. A.	Campbellsville, Kentucky
Smith Contracting Co.	Ft. Worth, Texas
Smith Contractor Corp.	Altavista, Virginia
Texas-Louisiana M. K.	Ft. Worth, Texas

MISCELLANEOUS

NAME	
Alaska Road Commission	Alaska
Baltimore, City of	Baltimore, Maryland
Bethlehem Steel Co.	Bethlehem & Steelton, Pa.
Commonwealth Edison Co.	Chicago, Illinois
Consumers Power Co.	Jackson, Michigan
Dane County Highway Dept.	Madison, Wisconsin
DuPont, E. I. deNemours & Co., Inc.	Wilmington, Delaware
Duquesne Light Co.	Pittsburgh, Pennsylvania
Kehaha Sugar Co., Ltd.	Kehaha, Kauai, T. H.
Lone Star Steel Co.	Lone Star, Texas
Niagara Mohawk Power Corp.	Albany, New York
Northern Indiana Public Service Co.	Gary, Indiana
Public Service Co., No. Illinois	Chicago, Illinois
Sheboygan County Highway Dept.	Sheboygan, Wisconsin
Tennessee Coal and Iron Co.	Fairfield, Alabama
Tennessee Valley Authority	Knoxville & Chattanooga, Tennessee
U. S. Atomic Energy Commission	Oak Ridge, Tennessee
U. S. Engineers	Tulsa, Oklahoma
W. Virginia State Road Commission	Charleston, West Virginia

CANADIAN CONTRACTORS

NAME	
Iron Ore Company of Canada, Ltd.	Montreal
Bell Asbestos Corp.	Asbestos, Quebec
Fraser Brace Ltd.	Montreal
Shawinigan Power, Ltd.	Montreal
McFarland Construction Co., Ltd.	Picton, Ontario
Ontario Hydro Electric Commission	Toronto
Peel Construction Ltd.	Brampton, Ontario
Carter Construction Ltd.	Toronto, Ontario
Wasson Coal Stripping	Minto, N. B.
Sten Peterson	Winnipeg, Manitoba
Bird Construction Ltd.	Regina, Saskatchewan
Morrison-Knudson (Canada) Ltd.	Vancouver, B. C.
Alaska Pine Ltd.	Vancouver, B. C.
Steeprock Iron Mines Ltd.	Steeprock, Ontario
Aluminum Co. of Canada	Montreal, Quebec
Celanese Corp. Ltd., of Canada	

***The list of TD-24 fleet owners is growing every day, as is the vastly longer list of owners of single TD-24 tractors. For this reason the above list is not complete. If you're a TD-24 fleet owner whose name is missing, we'll catch you next time.**

INTERNATIONAL HARVESTER COMPANY
CHICAGO 1, ILLINOIS

INTERNATIONAL

POWER THAT PAYS

WeldELLS®

...have set their own standards

Many of the largest users of Welding fittings refuse to accept any other fittings than WeldELLS.

They have found that when the name, WeldELL, is stamped into a fitting, that fitting can be accepted without question for any service for which it is designed.

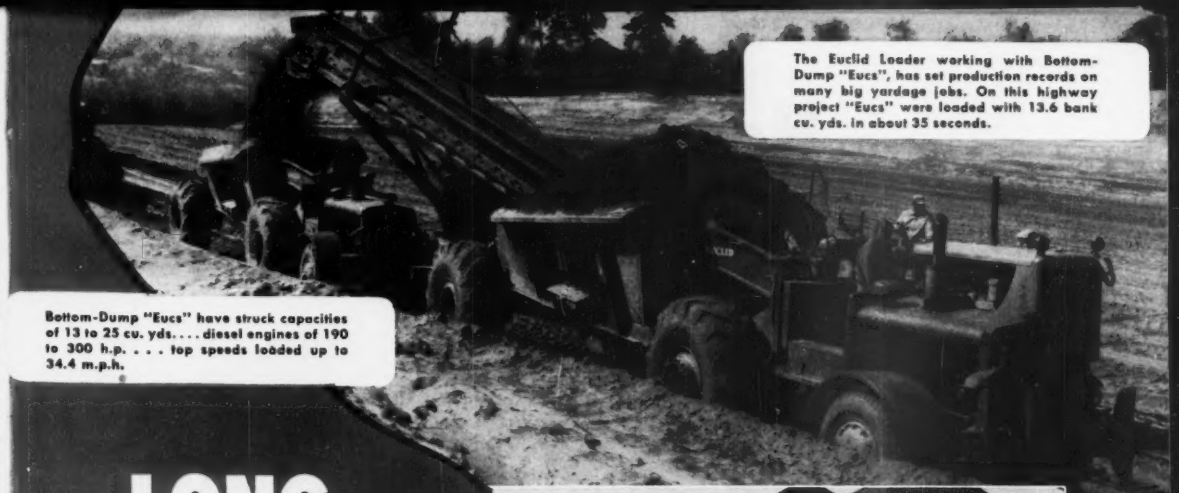
They have found that WeldELLS have features that please both the men who design and the men who erect welded piping . . . features that were pioneered by Taylor Forge . . . features that are combined in no other welding fittings.

They have found the answer to their every need in the greater range of sizes, weights and types of the WeldELL line . . . in the broader scope of materials.

Ask for up-to-the-minute facts about WeldELLS and Taylor Forged Steel Flanges.

TAYLOR FORGE

TAYLOR FORGE & PIPE WORKS, General Offices and Works: P.O. Box 485, Chicago 90, Ill.
Offices in all principal cities. Plants at: Carnegie, Pa.; Fontana, Calif.; Hamilton, Ont., Canada



The Euclid Loader working with Bottom-Dump "Eucs", has set production records on many big yardage jobs. On this highway project "Eucs" were loaded with 13.6 bank cu. yds. in about 35 seconds.

Bottom-Dump "Eucs" have struck capacities of 13 to 25 cu. yds.... diesel engines of 190 to 300 h.p. . . . top speeds loaded up to 34.4 m.p.h.

LONG LIFE ON THE TOUGHEST JOBS

Rear-Dump Euclids range in capacity from 10 to 34 tons... top speeds loaded up to 36.3 m.p.h.... diesel engines of 125 to 400 h.p.

Put "Eucs" on the job and be on more jobs!

● Proof that Euclids are engineered and built for long life performance in off-the-highway service is found in the record—of the thousands built, more than 9 out of 11 "Eucs" are still in use!

Engineered and built for lasting strength, Euclids are job proved for continuous operation, less down time and lower maintenance costs on a wide range of construction, mining and quarry work.

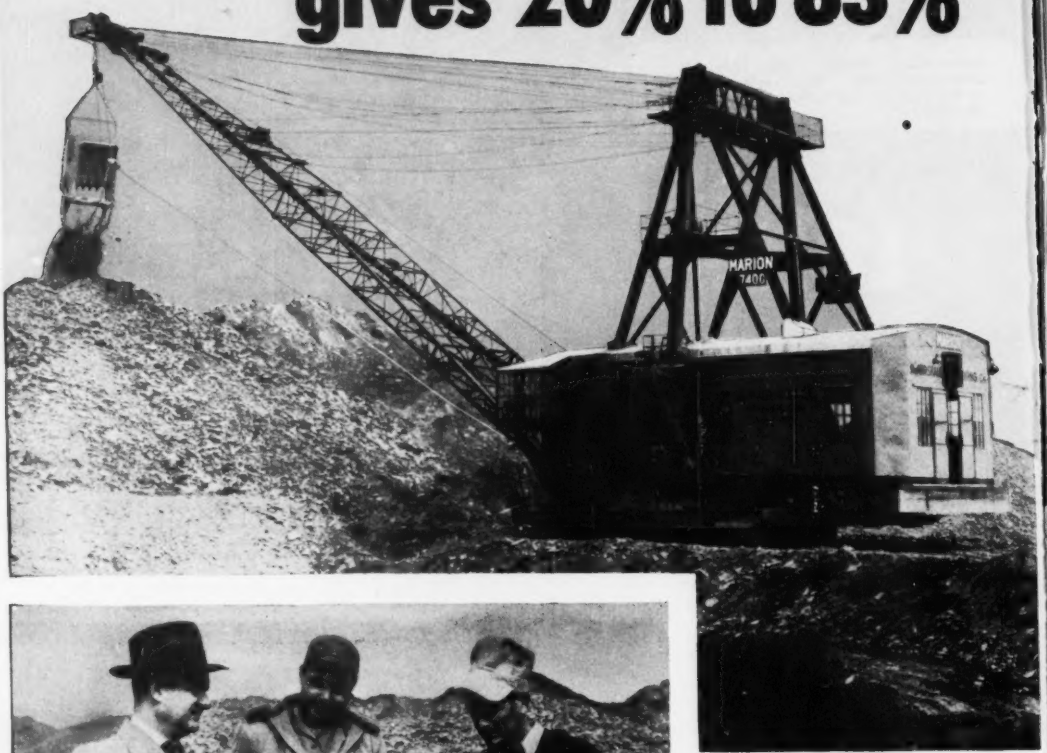
Ask your Euclid Distributor about the Euclid features that mean more loads per hour at more profit per load—large capacity, power and traction for steep grades, and speed on the haul road.

The EUCLID ROAD MACHINERY Co., Cleveland 17, Ohio

CABLE ADDRESS: YUKLID—CODE: BENTLEY

EUCLIDS *Move the Earth*

New American Tiger gives 20% to 83%

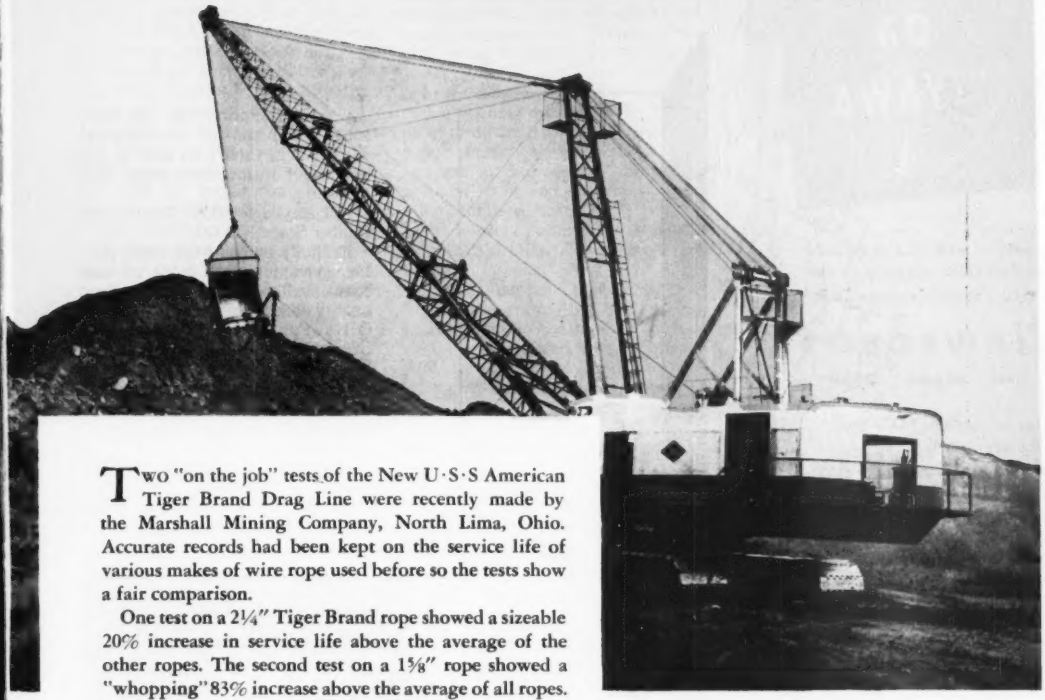


20% INCREASE IN WIRE ROPE LIFE. When this 14 cu. yd. drag line was equipped with the new Tiger Brand 2¼" Drag Line, the average service life of the rope was increased 20% over other brands tested.

SAVES MONEY AND TIME—INCREASES PRODUCTION. This new Tiger Brand Drag Line Rope quickly pays for itself through increased life and greater production. Try it next time you have to replace your drag rope.

USS
AMERICAN
TIGER BRAND
WIRE ROPE
UNITED STATES STEEL

Brand Drag Line increase in service life



Two "on the job" tests of the New U·S·S American Tiger Brand Drag Line were recently made by the Marshall Mining Company, North Lima, Ohio. Accurate records had been kept on the service life of various makes of wire rope used before so the tests show a fair comparison.

One test on a 2¼" Tiger Brand rope showed a sizeable 20% increase in service life above the average of the other ropes. The second test on a 1⅝" rope showed a "whopping" 83% increase above the average of all ropes. Digging conditions in all cases were the same.

This new Tiger Brand Drag Line was designed especially to resist the severe operating conditions imposed by this class of service.

The use of this new rope on your drag line will mean substantial savings in your wire rope costs. It will cut your down time and help to keep machines at top capacity.

DRAG LINE LIFE INCREASED FROM 600 HOURS TO 1100 HOURS —83%. The best service on this drag line using 1⅝" rope averaged 600 hours for other brands of rope. But with the new U·S·S Tiger Brand Rope, service life jumped to 1100 hours—almost double the previous average.

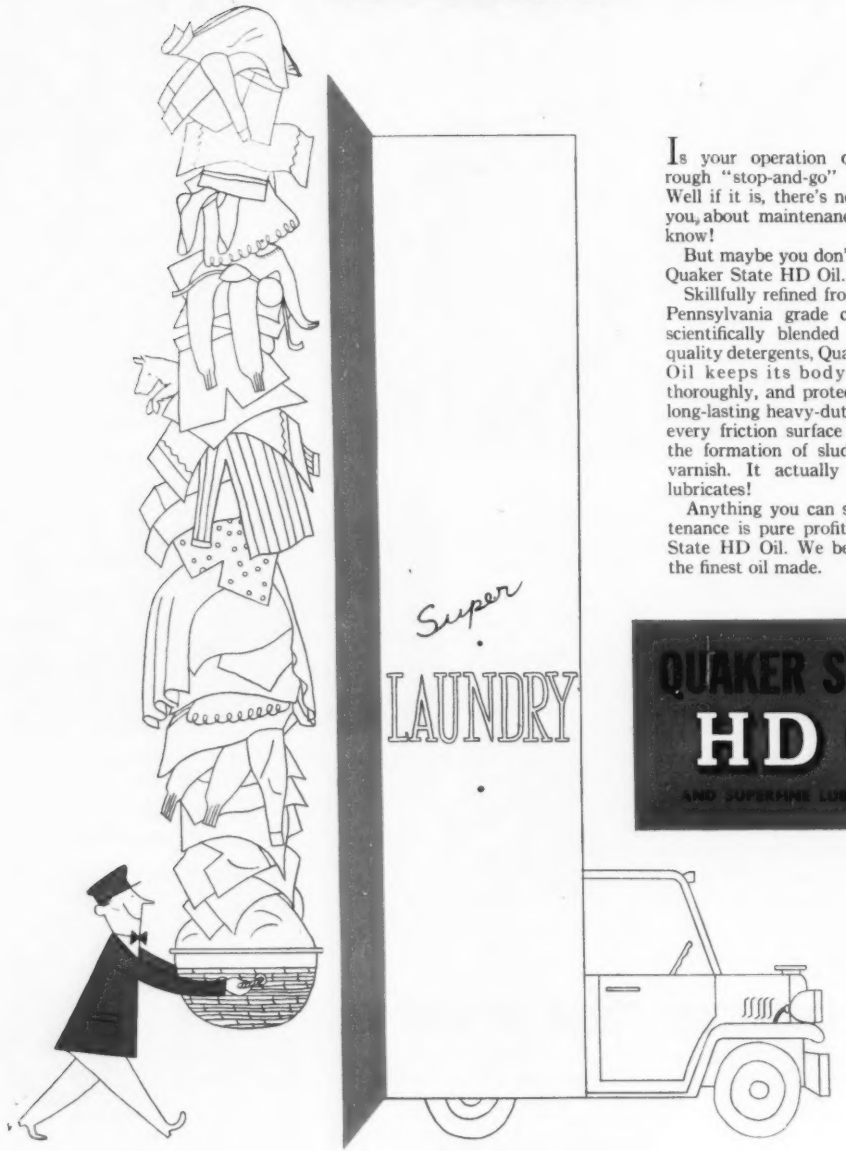
U·S·S AMERICAN TIGER BRAND WIRE ROPE

AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO · TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

Excellay Preformed

UNITED STATES STEEL

FINEST LUBRICATION FOR **ANY KIND** OF FLEET OPERATION



Is your operation one of those rough "stop-and-go" propositions? Well if it is, there's no need to tell you, about maintenance costs. You know!

But maybe you don't know about Quaker State HD Oil.

Skillfully refined from 100% pure Pennsylvania grade crude oil and scientifically blended with highest quality detergents, Quaker State HD Oil keeps its body, lubricates thoroughly, and protects fully. This long-lasting heavy-duty oil cushions every friction surface and prevents the formation of sludge, gum and varnish. It actually cleans as it lubricates!

Anything you can save on maintenance is pure profit. Try Quaker State HD Oil. We believe it to be the finest oil made.

QUAKER STATE HD OIL
AND SUPERFINE LUBRICANTS

QUAKER STATE OIL REFINING CORPORATION, OIL CITY, PA.

READER COMMENT

More on flood danger

Sir: It is with a great deal of interest I read of the flood danger to Albuquerque (ENR March 6, p. 43). I went there a few years before the turn of the century and left in 1911. I remember well the flood of 1905. It followed the break of a series of drouths of almost 30 years. The Old Town Bridge and the bridge at Corrales were washed out, and the overflow from the river was stopped at Fourth St. and Mountain Road only by heroic efforts.

At that time it was known that the business district was about the level of the river bed. An old timer had told my father that the river once ran where the Sante Fe Station is now located.

It seems to me to be an excellent build up for a disastrous flood.

FREDERICK B. FORBES
Fallbrook, Calif.

Telling public gets results

Sir: E. R. Harrington's article on the flood danger at Albuquerque, in your Mar. 6 issue, is an excellent example of a type of engineering activity that is all too rare. He informs the lay public in plain language of the nature of the menace. (It should be emphasized that "lay public" includes all brands of engineers who are not experienced in or familiar with hydrology.) There are many other similar situations in the United States, and those who know about them owe it to the engineering profession to point them out. And it behooves the engineering profession to "do something" about every such problem, be it simple or complex. As Gerard H. Matthes pointed out in his realistic evaluation in your Nov. 8 issue, we are far from having satisfactory solutions for the majority of our flood problems. However, we must do what we can with the funds available, and let the public know just where it stands with respect to the flood hazard. To lull the public to a false sense of security, or merely to neglect to point out the dangers, is to take a big step in undermining public confidence in the engineering profession.

A recent experience causes the writer to want to differ with Mr. Harrington with regard to the public's reaction. V. R. Bennion, M. C. Boyer, and the writer recently authored a committee report, adopted by the Engineers Club of Iowa City, on the danger to a portion of the city from flooding on Ralston Creek. Among other things the report suggested a study and the preparation of plans by a competent engineer, with a fair share of the ultimate costs to be borne by the property owners protected. A summary of the report was published in the daily newspaper, and the authors braced themselves for a storm of public indignation. Not one complaint was heard, however. A typical comment was, "When is the work going to start? I'm willing to pay my share."

In the same report, it was proposed that a warning system should be set up to save lives if a flood should come before protection works can be built, and also in case complete protection is found to be too expensive. Here again, public response was gratifying. Local disaster committees have already planned a "simulated Ralston Creek flood" to test their plans.

The assumption that those who live in areas endangered by floods are unwilling to do anything or to have anything done unless it is completely paid for by federal funds may be wrong. At least the engineer shouldn't express that view in articles intended for public consumption. The cynicism is likely to be contagious.

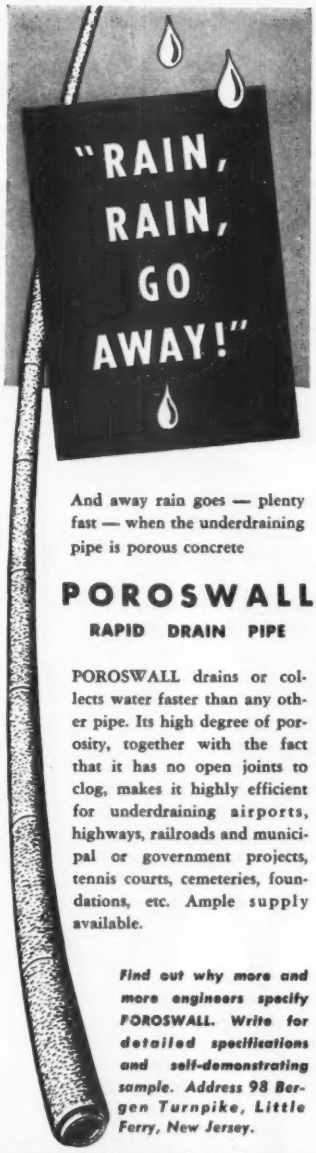
CHESLEY J. POSEY
Head, Department of
Civil Engineering
University of Iowa
Iowa City

Land for floodways

Sir: In the article "How Good is Flood Control" by Gerard H. Matthes (ENR Nov 8, p 30) the author makes reference to the Birds Point-New Madrid Floodway opposite Cairo, Illinois. He states that "Farmers there were paid the full value of their holdings as flowage right." This is not correct as easement rights only were acquired and paid for by the federal government for about 97 percent of the floodway. The only floodway land purchased in fee was an area of a few square miles immediately behind the upper fuse plug section of the front line levee.

The undersigned was employed in the Memphis District, Corps of Engineers, at the time that the floodway easement rights were acquired and is familiar with the procedure used. General (then Major) Brehon B. Somervell was district engineer at the time and the late T. T. Knappen was area engineer. Under the direction of these able engineers, exhaustive studies of past floods at Cairo were made specifi-

(*Continued on p. 14*)



And away rain goes — plenty fast — when the underdraining pipe is porous concrete

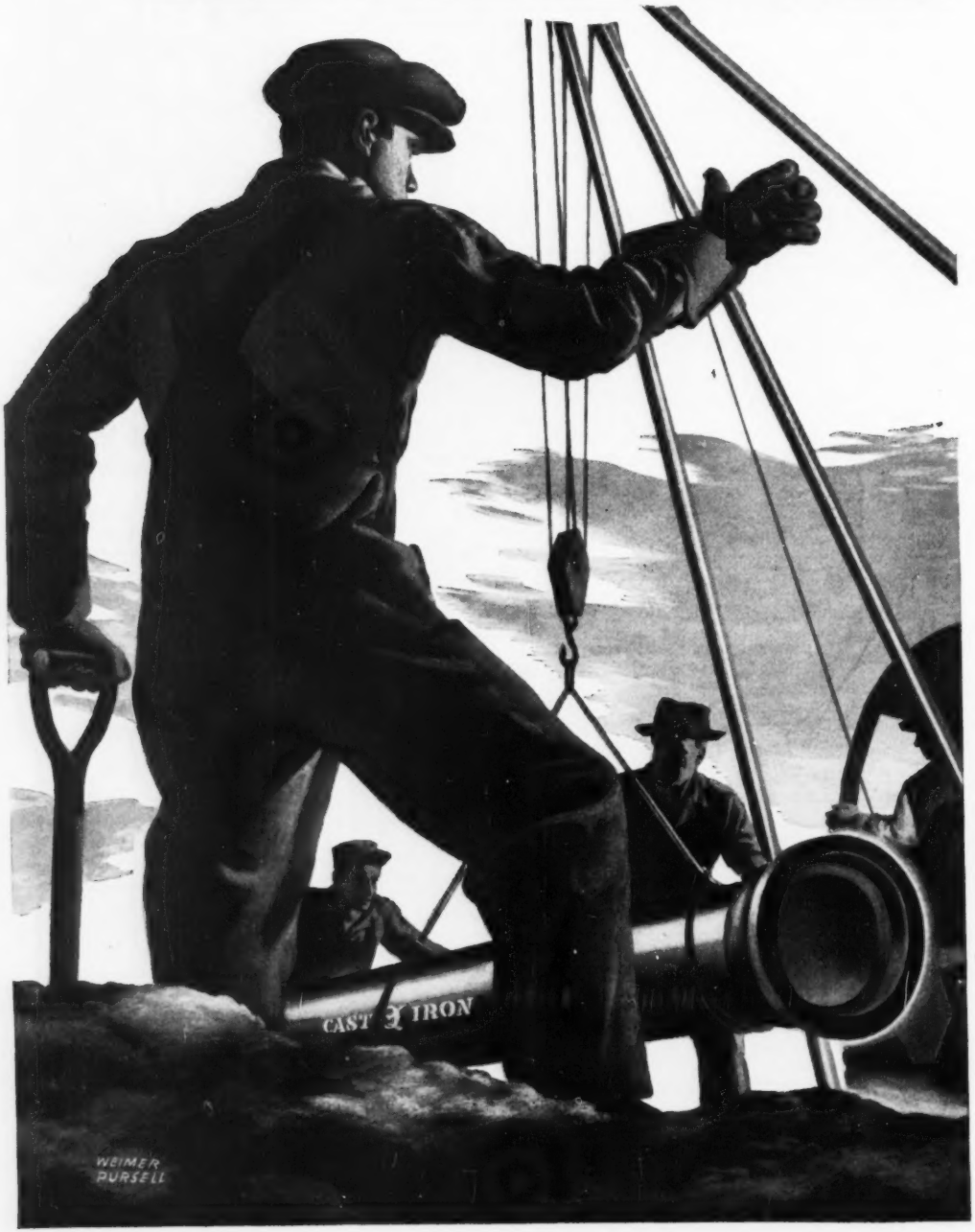
POROSWALL
RAPID DRAIN PIPE

POROSWALL drains or collects water faster than any other pipe. Its high degree of porosity, together with the fact that it has no open joints to clog, makes it highly efficient for underdraining airports, highways, railroads and municipal or government projects, tennis courts, cemeteries, foundations, etc. Ample supply available.

Find out why more and more engineers specify POROSWALL. Write for detailed specifications and self-demonstrating sample. Address 98 Bergen Turnpike, Little Ferry, New Jersey.

WALKER
POROSWALL
RAPID DRAIN PIPE
WALKER CEMENT PRODUCTS COMPANY
LITTLE FERRY NEW JERSEY

Why cast iron pipe



can and does save

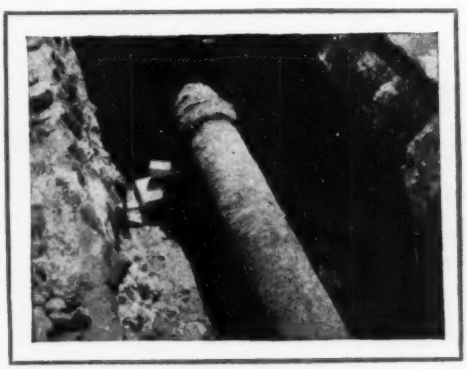
Millions of Tax Dollars

The answer, of course, is (1) cast iron pipe serves for centuries, and (2) over 95% of the pipe in service in America's water distribution systems is cast iron pipe. But let's get down to figures.

The cumulative cost of our water supply systems, from 1817 to 1951, is estimated at $6-billion, of which more than $3.5-billion is for cast iron pipe, including installation costs. The balance is for pumping stations, filter plants, storage facilities, etc.

Most of this money was raised by the issuance of bonds. Now, the useful life of cast iron pipe is at least 4 to 5 times the average term of a water revenue bond issue. Records prove that more than 35 American cities have cast iron mains in service that were installed over 100 years ago. A survey sponsored by three waterworks associations shows that 96% of all six-inch and larger cast iron pipe *ever laid* in 25 representative cities is still in service.

Add it all up and the answer is clear that, by serving for generations after bonds issued to pay for them have been retired and forgotten, cast iron mains save many millions of tax dollars.



One of a number of cast iron water mains which have been in service in New York City for more than a century. Over 35 other cities have century-old cast iron mains in service.

CAST IRON ®

CAST IRON PIPE

America's No.1 Tax Saver

©1952, Cast Iron Pipe Research Association

CAST IRON PIPE RESEARCH ASSOCIATION, THOS. F. WOLFE, MANAGING DIRECTOR, 122 SO. MICHIGAN AVE., CHICAGO 3.

HELTZEL HELPS
CONSTRUCTION DOLLARS
GO FURTHER

AT THE TRANSCONTINENTAL LINK
Where the Pennsylvania and Ohio Turnpikes will join

PROBLEM: Forms that guarantee meeting the most rigid inspections ever encountered on paving construction.

ANSWER: Heltzel steel forms because they are rigid and joint-locked to carry heaviest equipment without wobble. They last for job after job of rugged use.

FIVE RIGID SUPPORTS PER FORM
Only Heltzel makes a form with five positive and rigid tread supports per form. The three stake pockets are welded to the lip of the tread and the upturned base flange. At each end, the sliding joint lock bolsters the joint.

UPTURNED FLANGE
Only Heltzel provides 50% extra strength with each form, by incorporating the upturned flange as standard design.

EXCLUSIVE STAKE POCKETS
Only Heltzel makes this wide protected-type stake pocket for sure-grip wedging, and rigid support of the tread.

STAKES
Only Heltzel makes stakes from rerolled rail material with hot forged points.

WIDE TREAD
Heltzel makes a form with 2½" tread for greater traction, and for the greatest rigidity and strength.

HOT PRESSED JOINT LOCK
Only Heltzel makes a joint lock, hot pressed from ¼" plate, with driving ears projecting 3½" from the form.

The Heltzel Steel Form & Iron Company
Construction Equipment Since 1910
WARREN, OHIO
Flex-plane

(Continued from page 11)

cally for the purpose of determining frequency and extent of flooding that would have occurred on each tract of land in the floodway during the 80 years of records at Cairo if the floodway had been built and operating. These evaluations provided the data for appraising the fair value of the flowage easement on each owner's property, and easements were purchased for the amounts so established. Some owners contested the amounts offered for easements but my recollection is that the federal court sustained the amounts offered by the Corps of Engineers with only minor deviations in a few cases.

Certainly, no federal project has ever been carried out with a more equitable and more economical basis for right-of-way easements than the Birds Point-New Madrid floodway. As a result of the diligence with which the Corps of Engineers safeguarded the taxpayer's money in acquiring the floodway rght-of-way, easement rights were acquired for a fraction of the real value of the land at the time of the floodway construction.

ALBERT S. FRY
Knoxville, Tenn.

Breweries vs Bridges

Sir: I have been a subscriber to the Engineering News-Record for many, many years but have never written you a letter before.

I am just a little County Engineer out in the sticks with a bridge flood damage of more than a half million dollars in the last 3 years and what I wouldn't give for a carload or two of structural steel for emergency repairs. No steel available for bridges and schools.

Then I read the News-Record for Jan. 31, 1952 and I find on page 39 a Big Brewery article telling me that construction required over 10,000 tons of steel. That ought to make a man blow his top. Oh Boy, 250 car loads and I can't get one. 250 car loads for the most unnecessary construction in the whole world. I am sure your readers would like to know how come. Maybe it is steel from Europe and then we replace it with American steel to provide ship ballast. Anyway it's steel or may be (Steal).

I am sure an explanation would not be out of order, and maybe we can get some in the same way. It sure don't smell good to me. Does a brewery get priorities ahead of schools and bridges?

BEN C. DALE
County Engineer
Falls City, Neb.

Acceptance

Wherever you are, there's a MARION working near you —a MARION dragline, clamshell, crane, pull shovel, pile driver or walking dragline. The *worldwide acceptance* MARION machines have won over a period of 68 years is one of the best recommendations we have.

Their selection for such impressive assignments as the Boulder Dam, Panama Canal, TVA dams, and other big projects in construction, mining, quarrying and coal stripping endorses MARION as a name you can trust.

MARION has many "firsts" in the development and refinement of excavators and material handling machines. MARION offers more types and sizes of machines than any other manufacturer.

Look to MARION for resourceful, conscientious help in solving your excavating and material handling problems.

Write today for a copy of Bulletin 403-A—*it pictures and describes in condensed specifications every machine in the world's most complete line of excavating and material handling machines.*

MARION **POWER SHOVEL CO.**

MARION, OHIO, U. S. A.

from ¾ cu. yd. to 45 cu. yds.

OFFICES AND WAREHOUSES IN ALL PRINCIPAL CITIES

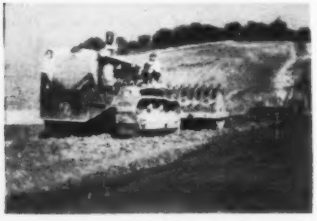
Nature gets a lesson in topography on the Folsom Dam

WHEN plans for damming the American River in California were considered, it became evident that the logical site near Folsom would not be adequate for potential storage if plugged the conventional way. Studying the problem, Army Engineers soon came up with an answer. They proposed a larger dam than the natural topography permits by adding wings to the main dam, plugging saddles between the hills and placing an auxiliary dam through an ancient river channel. The project will serve three purposes—flood control, water conservation and hydroelectric power for California. Gross length of the two dams and saddle dikes of rolled earth totals over 23,000 feet—more than four miles.

FOLSOM DAM AND RESERVOIR
AMERICAN RIVER
DRAINAGE AREA 1875 SQ. MILES
GROSS CAPACITY 1000 000 ACRE FEET
RESERVOIR AREA 11500 ACRES
DAM AND AUXILIARY DYKES
GROSS LENGTH 13000 FEET
MAX. HEIGHT 340 FEET
MORMON ISLAND AUXILIARY DAM
AMERICAN RIVER
UNDER CONSTRUCTION BY
CORPS OF ENGINEERS
U.S. ARMY
SACRAMENTO DISTRICT
YOU ARE STANDING HERE
FUTURE POWER HOUSE
MAIN DAM
A MULTIPLE PURPOSE DAM TO SERVE CALIFORNIA BY CONSERVING WATER, BY CONTROLLING FLOODS AND BY THE PRODUCTION OF POWER. TYPE OF CONSTRUCTION FEATURES A CONCRETE RIVER SECTION WITH EARTH FILL WING DAMS AND DIKES

Above: Loading fill on the double on this 23,000-foot gross length project is this "Caterpillar" team—a No. 12 Motor Grader equipped with DoMor Elevating attachment.

Below: This "Cat" D8 Tractor with sheepsfoot tamper works steadily compacting fill. Contractors: D. & H. Construction Co. and M. H. Hasler Construction Co.



Helping contractors speed various phases of construction are many "Caterpillar" Diesel Engines, Tractors, Motor Graders and Earthmoving Equipment. As on other projects, the big yellow engines and machines are giving a good account of themselves. Ruggedly built, they stay on the job day after day with a minimum of down-time. And extra hours of operation at lower cost are being added by proper maintenance—a matter of only a few minutes a day per unit. Good service from the nearby "Caterpillar" Dealer also helps step up their record of performance.

Drilling shot holes for power house excavation is a phase in which "Caterpillar" equipment is used. Compressed air is supplied by two Gardner-Denver and two Chicago-Pneumatic Compressors, each powered by a D13000 Engine. Contractor: Guy F. Atkinson Co.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

NEW MARKET FOR INDUSTRIAL BUILDING

The end of the current industrial building boom is in sight. Signs are clear: ENR contracts for industrial building are running 50% behind their level in early 1951—and U. S. industry is no longer announcing big new expansion programs the way it was during 1951 and late 1950.

So far this is just a relative slowdown—not a bust. Contracts are down only by comparison with record 1951; they are still far ahead of the pace set in 1950. And the value of industrial building actually put in place is still going up. Work put in place this year will be higher than it was in 1951. And it will be high through most of 1953 as well.

But the drop in new industrial building contracts is significant. It shows that builders are catching up with industrial building needs growing out of the current defense effort. By the middle of 1953, they will have put up most of the industrial buildings needed to prepare the U. S. for the possibility of another world war.

Actually, the biggest part of the defense-related building programs will be finished this year. And most of what is left over will be in the contract stage before the end of this year. So a lot of builders throughout the country will have to start all over again the process of looking around for more industrial work by the beginning of 1953.

• **Where Will It Come From**—Demand for industrial buildings can add up to quite a decent total in the next few years. But it's likely to be quite a different type of demand than builders have seen for some time.

Some demand for buildings can be expected from normal industrial expansion. Certain parts of the chemical industry, especially those making synthetic fibers and other new products, are likely to go on growing rapidly. Other "growth industries" will be expanding. And there will be some demand for expansion in other industries.

But builders can get more work than this if they go after it. They can actually create more demand for new buildings if they can find ways to build industrial buildings more cheaply.

• **Costs Are the Key—Contractors' big opportunity lies in the growing cost-consciousness of U. S. industry. Competition for sales is getting tougher. Industry has already cut prices on many durable goods for consumers. More price cuts are expected in the near future.**

But industry will have to cut its costs before it can cut prices very far. With wages high and going higher this year, about the only way to cut costs effectively in many industries is to use labor more efficiently. And one way to save on wages is to move into a more efficient building, where the expense of maintenance and the problems of moving and storing materials can be reduced to a minimum.

The return of competition can build up a good market for replacement of old and inefficient buildings. But contractors will have to watch their own costs in order to get the most out of this potential market. Industry will not be interested in replacing its old buildings if new ones add more to total costs than they save.

Builders will have to use all their money-saving devices in their bag of tricks. Building costs may be cut by using new materials, like "sandwich walls" of precast concrete or metal, complete with insulation. More efficient organization of work can save many expensive hours of labor. And using new machines—and more of them—can also reduce costs on many jobs. All these techniques are likely to be at a premium in industrial building in the near future.

SCRAP makes "clean-up time" pay off

When "housecleaning time" comes around, the scrap iron and steel you collect can easily change this usual chore into a profitable and helpful operation.

While you take advantage of today's high scrap prices, you also do your part in seeing that steel production for our defense program will not fall short. Then, with an improved scrap situation, there is a better chance for you to get that iron or steel equipment you've been needing. About half this metal comes from scrap!

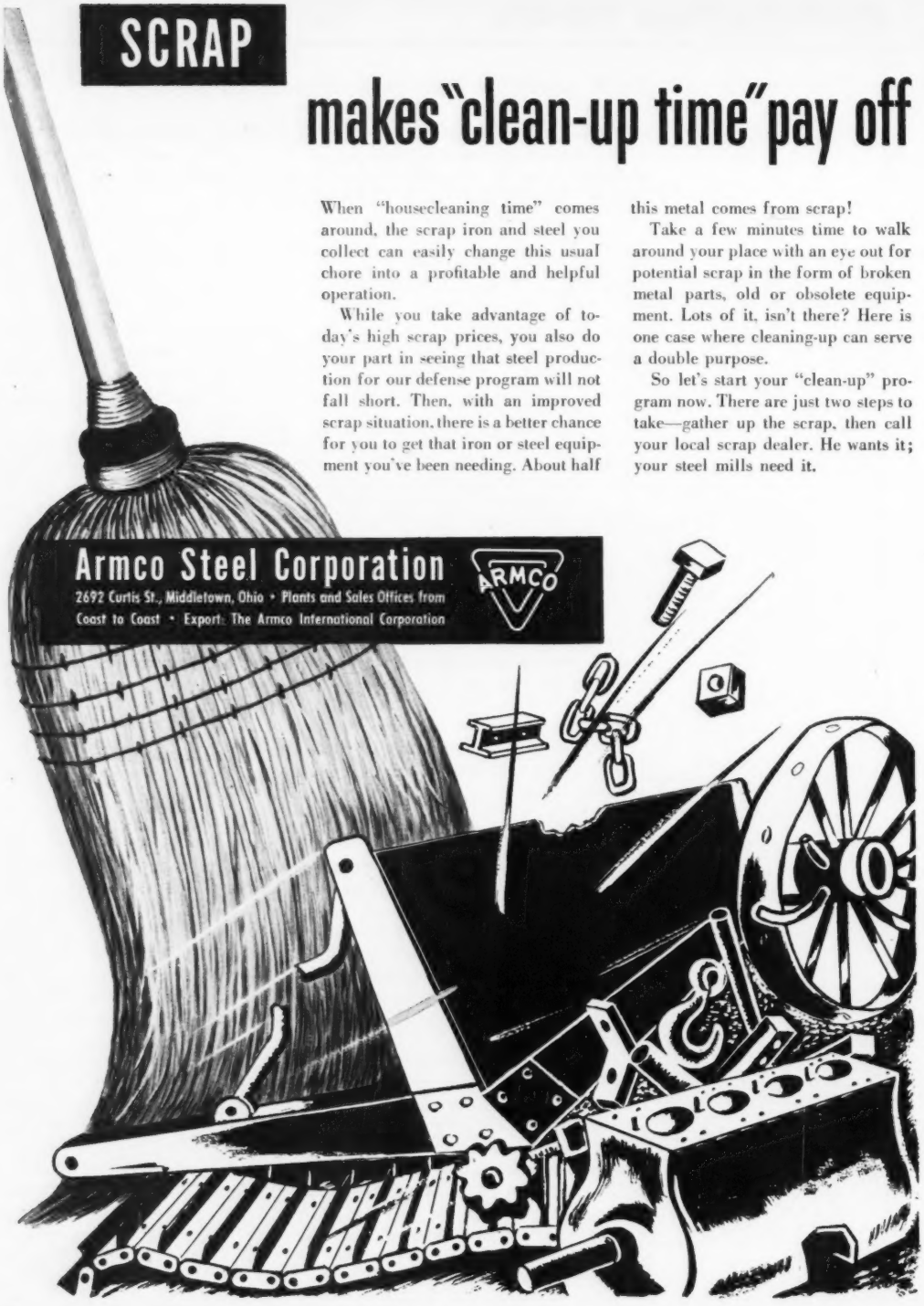
Take a few minutes time to walk around your place with an eye out for potential scrap in the form of broken metal parts, old or obsolete equipment. Lots of it, isn't there? Here is one case where cleaning-up can serve a double purpose.

So let's start your "clean-up" program now. There are just two steps to take—gather up the scrap, then call your local scrap dealer. He wants it; your steel mills need it.

Armco Steel Corporation

2692 Curtis St., Middletown, Ohio • Plants and Sales Offices from Coast to Coast • Export: The Armco International Corporation

ARMCO



THE CONSTRUCTION WEEK

POWER PLAY—Federal Power Commission approval of a 30-year power contract between the Arkansas Power and Light Co. and Reynolds Metals Co. early this week has apparently cleared the way for construction of a proposed $35-million aluminum plant near Arkadelphia, Ark. The wrangle over contract terms delayed start of plans for nearly three months. Meanwhile Arkansas Power and Light Co. last week announced plans for a $26-million expansion program of its own.

CRISIS PASSES, RIVERS ABATE—With only a gaping hole in a dike that flooded Sherman Air Force Base at Fort Leavenworth, Kan., as the last mark of its troubles, the sick Missouri basin began the road to recovery. Flood stage at Kansas City, Mo., hit 30.64 ft, but the dikes held and, with good weather predicted, the outlook was bright. Last year's high water mark with 36.2 ft, which spelled disaster. But in Dubuque, a city without dikes, the flood waters poured through the lowlands routing 1,000 persons and throwing the Iowa area into peril. Meanwhile a flood of relief money was loosed in Washington, where President Truman signed a bill allotting $25 million for disaster relief in the stricken Missouri and Mississippi valleys.

CONTROLS REVISION DELAYED—Truman's seizure of the steel industry has again delayed attempts of Senate Banking Committee to get a new controls bill started through Congress. Just before the seizure, the committee was about ready to vote out a bill that would have been almost a simple extension of the law as it now stands. Now, the committee has decided to start over again from scratch—and with the bungling in the steel situation, chances increase for drastic weakening of the law (see also p. 21), leaving only materials controls sufficient to guarantee a priority for military production. The committee has established for itself a deadline of mid-May.

HIGHWAY BUILDING CONTEST—With U. S. Bureau of Public Roads approval the North Carolina State Highway Commission is going to find out whether it can build roads cheaper than private contractors. The commission will build two federal-aid highway sections under force account in Chatham and Randolph Counties. Private contractors (J. K. Cecil and Son and Dickerson, Inc.) will build two similar road sections in Davidson and Lee Counties. The project will be watched for comparative prices. A long and bitter battle over force account work in North Carolina will keep the contest keen.

For cost and volume index see page 113

IN THIS ISSUE—Building men press for greater relaxation of controls (p. 21) . . . More mortgage money for homebuilders under consideration (p. 24) . . . New bridges being planned as steel is easier to get (p. 26) . . . C. L. Warwick, ASTM secretary, dies suddenly at a society dinner (p. 27) . . . AFL secretary-treasurer warns construction labor to end wave of strikes, jurisdictional disputes and wildcat walkouts (p. 29) . . . Boulder City, Nev., takes first steps to freedom from government ownership (p. 36) . . . Pittsburgh belt route plan saves construction (p. 41) . . . Capitol Hill redevelopment will improve Nashville, Tenn. (p. 44) . . . Longest plate girder bridge is built in Germany (p. 51) . . . Thirsty industry demands a lot of engineering to supply its water (p. 66) . . . New skyscraper in New York City has walls of glass (p. 79) . . . Record highway construction seen ahead (p. 107) . . . New brick speeds construction (p. 130) . . . Editorial (p. 136)

THOROSEAL
SCORES ANOTHER
HOME RUN
at the Braves Field

General contractor and technical supervisor of Standard Dry Wall Products, Inc., plan correction of an extreme condition existing in bleacher seats at Braves Field, Boston, Massachusetts.

Above photograph shows THOROSEAL FOUNDATION COATING being grouted into upper, or wearing, surface of bleacher seats.

Right photograph shows soffits of concrete seats where concrete has blistered away from reinforcing rods. Rods were sand-blasted and sealed with THORITE Patching Mortar and entire undersurface sealed with THOROSEAL.

General contractor, Henry Gironi, Allston, Massachusetts, an expert, with long experience in masonry maintenance, rehabilitation and surface protection, performs correction task on Braves Field, with satisfaction to all concerned. Waterproofing Products, Inc., Allston, Massachusetts, furnished the materials.

THORITE Patching Mortar was used for sealing rods and patching cracks and blisters in concrete. THOROSEAL FOUNDATION COATING was used for grouting wearing surfaces.

"HOW TO DO IT." Get our new 20-PAGE BROCHURE, with designer's guide. Pictorially described, in detail

Standard Dry 40th YEAR **Wall Products**

NEW EAGLE, PENNSYLVANIA

Building controls crumbling as industry pressure mounts

(Washington staff report)

From here on out, the trend from Washington—and all around the construction industry—is toward decontrol. Pressure has been building up for months on wages, prices, and materials. But the steel wage-price crisis, capped by the President's seizure of the steel mills, has brought the whole controls picture to a turning point.

Mobilizers already are blueprinting a step-by-step lifting of controls on materials for construction and production.

Barring new crises—either military or in metals output—here's how the decontrol schedule shapes up now:

1. From now until 1953, Washington will loosen up the present Controlled Materials Plan. CMP will retain its general form, with allotments of steel, copper and aluminum for both military and civilian users. But there'll be fewer civilian restrictions.

2. Starting either in January or April (depending on how rapidly metal supplies ease up) CMP will be cut down to cover only military demands. That doesn't mean there'll be plenty of metal for everyone else. But civilian users will have to hunt for materials on the open market without benefit of government allotments.

Paul M. Geary, exec. v.p., National Electrical Contractors Association:

"Direct controls encourage inflation by encouraging the philosophy of scarcity."

3. By January 1954, or shortly thereafter, most mobilization planners feel that metal supply will be adequate to end allotments even for military requirements—which at the same time will be shrinking rapidly.

• **Easing started**—Construction controls already have progressed well into the first phase of this timetable. The virtual ban on commercial construction—only builders who could prove urgent need or hardship hitherto had won government approval—has been lifted. The National Production Authority has approved 105 commercial projects, which will be allotted metal in the third quarter of this year. And NPA's similar hold-down on amusement-type building—theaters, bowling alleys and the like—will be eased soon, probably in the fourth quarter.

Another interim relaxation of construction controls is set for the third quarter. Beginning July 1, builders of schools and public roads will be permitted to self-authorize—write their own CMP allotments for increased amounts of steel, copper and aluminum. Similar increase of CMP allotment authority is in the works for other types of public construction and for housing.

There'll be increased allotments (in total) for commercial building in the fourth quarter, with a number of additional projects authorized for starts after Oct. 1. Non-defense industrial projects also will get more metal.

Officials are considering several other measures toward easing controls in addition to boosting self-authorizations, removing restrictions on certain projects and increasing allotments.

On the other hand, the relaxing of controls is being accompanied by a slowing of government aids for industrial expansion. The most important of these programs—granting of five-year tax amortization—already has passed its peak. Fast write-offs for some $17 billion of expansion projects have been approved. Action on another $9 billion is pending, and that will about wrap up fast amortization.

The government's efforts to ease controls were appreciated by builders—but they weren't considered quick or complete enough. Here's how builders felt last week:

Clyde A. Fulton, president, National Retail Lumber Dealers Association:

"Unless both credit restrictions and construction controls are removed promptly, there soon will be an oversupply of metals."

AGC's position

The executive committee of the Associated General Contractors, meeting in Washington last week, reaffirmed two resolutions adopted at its national convention in Detroit earlier.

One resolution: "Strongly recommends to government agencies that controls over construction activity be relaxed and abolished as soon as possible consistent with national defense needs. . . ."

Another: "Recommends an early relaxation of the credit controls in Regulation X as they apply to commercial, multi-story and single family housing projects which are now retarding the development of such future projects. . . ."

Homebuilders riled

Alan E. Brockbank, president of the National Association of Home Builders, returning to Washington from a tour of housing projects in 24 states last week, blasted government-imposed credit curbs.

"The threat of inflation has long since disappeared. The predicted critical scarcity of materials never has appeared. Also, defense production needs, as presently scheduled, are being more than adequately met. The imposition of controls merely for controls' sake cannot be justified," he said.

He urged Congress to remove Regulation X and allow the industry "to

get on with its job of housing U. S. families." Credit curbs have "almost completely prohibited the home building industry from supplying good housing to low income workers," he charged.

New York group acts

A series of resolutions by the powerful New York Building Congress last week sought elimination of Regulation X as it refers it to commercial and industrial building. Here's what they said:

"Despite recent changes in policy intended to alleviate serious conditions that resulted from direct restrictions on new construction starts, we now feel that a substantial backlog of commercial and industrial construction is prevented from going ahead by reason of indirect restrictions imposed by Regulation X. . . . "

"By way of contrast," the congress noted, "the Regulation specifies more liberal lending limits for small homes and multi-units, beginning with 90% in the case of a house worth up to $7,000, and 83% for multi-unit housing where the cost of an apartment doesn't exceed $7,000."

But, said the builders, there's no such sliding scale for commercial industrial construction. And that gives a distinct preference to loans for residential work.

"Regulation X now stands in the way of encouraging substantial amounts of new construction in New York—a non-defense area where the building industry has to depend on that type of construction as a large source of work."

Frank W. Cortright, executive v.p., National Association of Home Builders: "Home builders believe that controls are not necessary. They will build housing within the limits of the supply of metal items. Further, they will build only such housing as they can finance satisfactorily and can fall within the limits of the home purchaser's ability to buy."

Advisors slap controls

A request that OPS end all price controls over the construction industry was made by the industry's advisory committee at a meeting with price controllers last Friday. The committee said complete decontrol was the only way to benefit depressed sections of the industry. It argued that contractors were offering services well below ceiling prices, and that the continued requirements for keeping elaborate records was an unnecessary and costly burden.

OPS countered with an idea of its own. It wanted to restrict Ceiling Price Regulation 93—now covering all phases of construction—to manufacturers sales on an installed basis. It proposed a flat-price method of controlling prices of construction services. The industry committee objected to this approach on the ground that OPS had not sufficiently spelled out what the flat price method would cover. Officials are rewording that section of the proposed order.

Much of the fight over controls is being centered on the Banking Committees of the House and Senate, which are charged with writing the extension to the basic controls law, the Defense Production Act.

If this were not an election year, a washout of the controls law would be a certainty. However, congressmen and senators under the political gun of election day are leery of going on record as being completely against controls.

Alcoa urges controls relief

Aluminum Company of America, the nation's largest producer of aluminum, called this week for a gradual lifting of government controls to speed the day when a contractor can pick up the telephone and get all the aluminum he wants.

Company officials are sure there's plenty of aluminum and even more to come soon from current expansion but they feel the government's restrictions are a hindrance and not a help.

Donovan (Don) Wilmot, vice president in charge of product sales and assistant general sales manager, puts it this way:

"Set aside for the military all the aluminum the government needs and then leave it to the industry to see that the remainder is fairly distributed. The industry knows how to do it better than the government."

• **Production hampered**—Alcoa has virtually no idle capacity among facilities devoted to producing pig aluminum but does have some idle capacity in fabricating plants. But that's due to the fact that fabricating capacity always exceeds pig production so the company can handle a surge of activity in any type of finished product.

Fabricating facilities now are operating at about 40% of capacity; but the figure is misleading because some of the capacity is idle normally.

Controls are partly responsible for some of the idle capacity however, Wilmot says. He cites this example:

Alcoa is asked by the government to produce large amounts of rod and bar aluminum. Directives to the company call for only minimum amounts, showing the company is free to make all of that type of product it can.

With Alcoa making great quantities of rods and bars, those products crowd certain fabricating equipment. Fabricating equipment devoted to other products, like sheets, is forced to remain idle.

Controls are causing curtailments "all along the line," says Wilmot. That's why the building industry is feeling the pinch of an aluminum shortage which Alcoa feels doesn't really exist.

"In fact, there have been many times in the past four months when it might have been hard to find enough civilian orders if it were not for the amount of aluminum tied up by controls."

• **The problem**—Of course, much metal is going to the military. And Alcoa wants the defense program to get every pound of aluminum it needs. The point Alcoa officials make is that the remainder should be spread around—by the industry—according to the principles of demand and supply.

When the present defense emergency ends, Alcoa men say, there is going to be twice as much aluminum available as there was before the start of the Korean hostilities. (Pre-Korea capacity was 1.45 billion lb of ingot; it is scheduled to reach 2.9 billion lb in 1953.) As the production of aluminum continues to rise and military requirements fall, the gap in between—which is available for civilian use—will continue to widen.

Alcoa would like to see the government determine the real needs of the military as the first order of business in straightening out the aluminum supply situation. Then the company

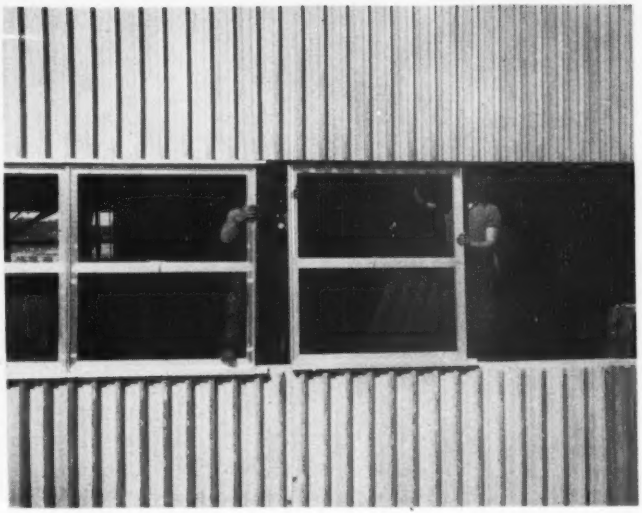
believes the government should see that the necessary amount is given to defense. After that, the company says, let the industry deal with its own customers in parceling out the remainder.

• **The future**—"It's anybody's guess when the building industry can look for a real easing of controls," declares Wilmot. "I think there's more aluminum available in the third quarter and there'll be still more in the fourth quarter. There's talk of further easing of controls but it's still in the talking stage."

"Our long range view is very optimistic, however," Wilmot said. "We don't let our imagination run away from us but we can see big increases in the consumption of aluminum by the construction business. Construction will be one of our largest fields in the future. The amount of our production used there has risen from 19% to 30%. Roofing, industrial siding and sheet are going to be real items in the future."

The electrical industry is now aluminum's biggest single market. It uses around 475 million lb a year. The building business is close behind in second place with a potential market of about 400 million lb in a free market. The auto industry is third with an estimated 205 million lb.

• **Others agree**—Alcoa is one of the country's three big producers. Next year Alcoa expects to have about 40% of the total business. Reynolds will have around 28% and Kaiser will do about 27%. Anaconda, a new aluminum producer, will have about 5%.

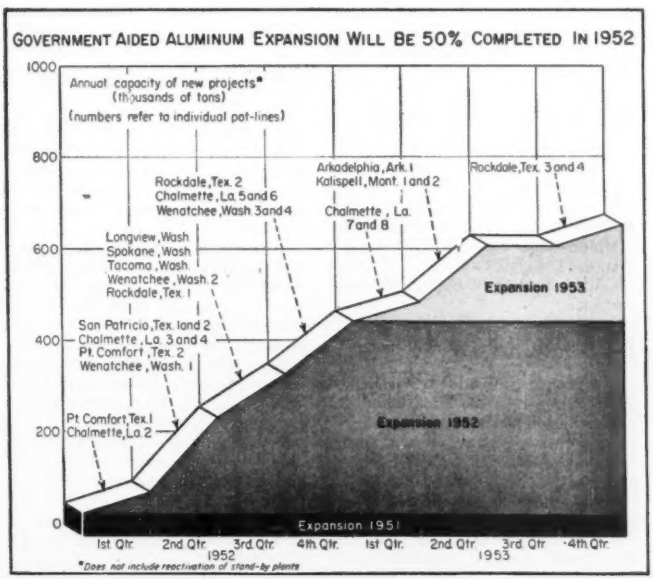


EASIER CONTROLS ON ALUMINUM will mean greater flexibility in design for buildings. This industrial plant used aluminum for siding and windows. (Alcoa photo.)

In testimony before the Senate Small Business Committee, David P. Reynolds, vice president in charge of sales for Reynolds Metals Co., recently voiced views similar to Wilmot's.

"All of us recognize that when shortages develop and military needs are large and urgent, there must be controls and restrictions and that government must step in. But it should work both ways. As the supply grows and as military needs drop or level off, government should recognize the need for less controls and let the industry operate more on a competitive and free enterprise basis. . . .

"In fairness to all civilian fabricators, the government should recognize that, as aluminum becomes more plentiful this year and next, the extra quantities may be too large for distribution on a 'hardship' basis alone. Why should civilian industry have to struggle along on small rations merely because the system of controls is too rigid?"



Change pending

As a matter of fact, the Prime Aluminum Products Industry Advisory Committee urged NPA two months ago to make four changes in policy to give the industry greater flexibility in meeting changes in the supply-demand picture. They were (1) the right to accept orders up to 125% of their productive capacity; (2) the right to sell up to 5% of available metal on unrated orders, provided such uses do not increase the consumption of other critical materials; (3) recognition by NPA of a possible 25% attrition factor in determining CMP allotments; (4) a system of weekly reports to show backlog shifts.

NPA has been sifting these recommendations. Amendment of aluminum order M-5 is expected to be issued this week. Best dope is that it will contain only one major change—permitting manufacturers to take orders for up to 125%, instead of 100% of their productive directive. But they'll have to take care of carryover orders, deducting total carryover from the 125%.

SEN. BURNET R. MAYBANK (left), Chairman of the Senate Banking and Currency Committee, confers with Alan E. Brockbank, Utah builder and president of NAHB.

Congress to consider easing mortgage money for homes

The Senate Banking and Currency Committee will hold hearings scheduled to start this week, on a bill by Sen. Burnet R. Maybank, to increase by $1.3 billion the present purchase authority of Federal National Mortgage Assn. Chairman Maybank said it is necessary to increase FNMA's purchase authority because of the tightness of private mortgage money. (See story on page 113.)

The only way for builders to obtain the necessary assurance of permanent mortgage financing, Sen. Maybank said, "is by a bank or other mortgage lender obtaining from the Federal National Mortgage Assn. an advance commitment to purchase the permanent mortgage when construction of the housing is completed."

The increase in Fannie Mae's purchase authority would be available until June 30, 1953, only for advance commitments on programs of defense housing, insured military housing, and disaster housing.

Fannie Mae discontinued its over-the-counter purchase of mortgages April 2 because of the exhaustion of its funds, about 90% of which went for veterans' mortgages.

The bill also would provide:

- $1 billion of new insurance authorization to carry out the home mortgage insurance operations handled by the Federal Housing Administration.
- Reallocations of existing authorizations of up to $1.6 billion.
- $200 million additional authorization for housing and $100 million for defense housing and community facilities.
- For $1 million additional authorization for continuing the Alaskan housing program.

Other congressional developments of interest in the construction field last week:

I. Congressional action

. . . Congress approved and sent to the White House a bill to provide for flood relief in the Missouri Valley. This would be in addition to $6.7 million already available. Meanwhile, a House Interior Subcommittee heard General Lewis A. Pick, Chief of Corps of Army Engineers, report on flood damage.

II. Senate action

. . . Approved a third supplemental appropriations of $976 million for various government agencies to finish the current fiscal year. This amount is $16 million more than Senate Appropriations Committee recommended and almost $8 million more than the House-passed bill. After a floor fight, the Senate rejected amendments by Sen. Douglas which would have reduced by $50 million the $69.5 million in the bill allotting federal aid to highways.

Douglas contended the savings would be in unprogrammed funds and that it presented a real opportunity for the Congress to practice the economy it had been preaching. However, opponents of his amendment said the Congress had a moral obligation to the states to make good on its matching funds for highway building. Other construction money in the bill was untouched.

III. Committee action

. . . Senate Foreign Relations Committee voted to report controversial St. Lawrence Seaway bill. Senate Majority Leader McFarland has agreed to call up the measure within the next few weeks. Sen. Wiley, who led the fight to get the bill out of committee, isn't optimistic over its chances of Senate passage.

. . . Senate Public Works Subcommittee favorably reported S. 2437 (Chavez) to provide funds for federal highway aid for 1954, 1955. Bill provided for $600 million for each year in federal aid. Committee adopted an amendment earmarking 25% of the $50 million for access roads to be used for radial and circumferential roads around metropolitan areas engaged in defense work. The House earlier passed a highway aid bill calling for the expenditure of $550 million for each year.

. . . House Interior reported HR 2643, which would consolidate Parker Dam Power Project and Davis Dam Power Project into the Parker-Davis Project.

IV. Committee hearings

. . . The Senate Small Business Subcommittee on Procurement last week looked into what it termed discrimination by NPA against distributors in the allotment of aluminum for the construction of storm doors and storm windows.

The alleged discrimination stemmed from a recent policy change by NPA which cut off allotments to distributors who do not fabricate, forcing them to obtain aluminum from their historical suppliers.

The policy change inaugurated was made after a discovery of double allotments of aluminum in the amount of 500,000 lb as a result of a policy that permitted distributors to draw allotments which they turned back to manufacturers for fabricating, while the manufacturer at same time was able to draw a duplicate allotment as the historical supplier of the distributor.

Seven window firms testified that they had received allotments which they turned over to Air Seal Mfg. Co. for fabricating and that Air Seal had been getting allotments as their historical supplier as well as of 23 other window firms. The 500,000 lb overallotment which went to Air Seal never has been recovered and Subcommittee Chairman Blair Moody blasted NPA for failure to recover this overallotment.

Meanwhile, one of the window firms, Rose Window Mfg. Co. of Philadelphia, complained to the committee of the new policy that forced it to obtain its aluminum through Air Seal, whose prices, it alleged, were out of line with competitors.

. . . Bailey Subcommittee of House Education Labor Committee completed hearings on four bills to provide federal aid for areas that won't have adequate housing for new pupils entering school in September. Committee is expected to write its own bill, which will be reported to the full committee in about one week.

. . . Agriculture Dept. Secretary Brannan testified before the Jones Subcommittee of House Public Works Committee on Department's position in flood control work. Chairman Jones said department should clarify its position vis-a-vis role of Army Engineers in flood control. He said opposition of farmers to main-stream dams has appeared to be inspired by Agriculture Dept. Many farmers oppose main-stream dam projects that would condemn farmland on basis that Agriculture Department's programs for flood control and erosion prevention on watershed areas are sufficient for those purposes.

Brannan said that he has not encouraged opposition to Army Engineer projects; that he feels programs are complementary. But since his department is primarily concerned with soil erosion it always will be more concerned with its small-dam project on land of individual farms. This program, he said, keeps soil on the farm year after year, while chief advantage of main-stream dams is to take care of periodic abnormally high water flow such as in Missouri River Valley this spring. Committee will continue hearings.

. . . House Appropriations Subcommittee has begun hearings on military construction. Subcommittee Chairman Riley expects to receive an authorization from House Armed Services shortly, after which committee will go to work on an appropriation. Since a good portion of the $3,890,296,392 appropriated for military construction last year is still uncommitted, prospects this year are that the appropriation will be well under last year's figure.

SIGNALS SWITCHED—President Truman won't try to shift flood control and navigation works from the Army Engineers to the Interior Department after all. He had the Budget Bureau working at high speed on plans to make the switch for two weeks; but after returning from his recent air trip to the Missouri basin flood area, he changed the signals. It appears that Lt. Gen. Lewis A. Pick (right), Chief of Engineers—along with the engineer staff in the Omaha division and the governors of nine Missouri basin states—influenced his thinking. Truman says he is now convinced that the Hoover Commission was wrong in suggesting the change. His decision means that civil works will stay with the Army Engineers for a long time (ENR Apr. 24, p. 25).

Army Engineers blamed in levee break

Mincing no words, a federal district judge in Sacramento, rendered a decision blaming the U. S. Army Corps of Engineers for a 1937 levee break on the Feather River in California.

The Engineers, Federal Judge Dal M. Lemmon said, never should have entrusted the supervision of an important levee repairing task to two inspectors who were not registered engineers.

The Engineers' defense that the levee probably was weakened by rodents led Judge Lemmon to say:

"The court is convinced that rodents had no more to do with the crevasse than did the mythical rats lured to their death in the River Weser by the Pied Piper of Hamelin."

• **Cites failure**—In reviewing trial testimony regarding the levee construction method, Judge Lemmon criticized the failure to use water for compaction.

"To omit the mixing of water with the soil used to restore the levee," he said, "is reminiscent of the forcing of the Israelites to make bricks without straw."

Judge Lemmon's decision, unprecedented in California, has cleared the way for some 70 landowners to collect damages from the government for a devastating flood in 1937. His ruling was in connection with litigation to determine whether the Engineers' agency was responsible for the levee break.

The extent of the damages will be determined in subsequent trials. The property owners have sued for a total of $400,000.

The landowners asserted in their suits against the government that a levee breakthrough resulted from the imperfect backfilling of a cut made in a levee in 1934 by the Engineers.

The court decision upheld this contention, criticizing particularly the failure of the Corps of Engineers to have a registered engineer in charge of the work of heightening and strengthening the levee.

During the work, the Army Engineers cut from the levee a section about 12 ft wide. Later the Corps refilled the cut, leaving the section, in the words of the court decision, in "a weak and dangerous condition."

Under all circumstances, a high degree of care should have been exercised in backfilling the cut," the judge commented. "When the sacrifice of human lives and of millions of dollars of property is involved, it seems penny-wise and pound-foolish to cut corners."

FIRST STEEL is hoisted into place in construction of the Central Artery over the Charles River, Boston. Due for completion in 1955, the project will cost an estimated $60 million (ENR Nov. 1, 1951, p. 133).

Bridge planning shows spurt

Plans for construction of new bridges in many vital locations have been stirred to activity by recent relaxations in government controls on structural steel. Here is a roundup of some of the most significant new developments:

I. Kansas City plans

A new toll bridge, sponsored by Clay and Jackson counties, to cost $15 million, is being considered for a Missouri River crossing at Kansas City. Detailed studies of the span have been completed and will be presented next month to the Missouri Highway Department in an effort to obtain state and federal financing.

According to the designer, the engineering firm of Howard Needles, Tammen and Bergendoff of Kansas City, the bridge would be the first suspension type structure of its kind across the Missouri River.

Present plans call for a 616-ft. main span in the center, and two side spans of 308 ft each, between piers. Four piers would be sunk in the river between levees.

The bridge would link Kansas City in Jackson County, Missouri, with Clay County, Missouri. Recently Kansas City annexed about 20 sq mi to the north in the Clay County region.

Two 26-ft roadways, separated by a 4-ft medial strip, have been designed to carry traffic across the river providing two lanes each way. Two 3-ft walkways are also in the plans.

R. N. Bergendoff, member of the firm, said the $15-million project will be three miles long including viaducts over rail lines and connections on the Kansas City side at the Paseo and Sixth Street trafficway, and at Armour Road on the Clay County side. Armour Road is in North Kansas City, an independent community in Clay County now surrounded by Kansas City as a result of the recent annexation.

Clearance above high water would be 55 ft, according to specifications.

• **Existing bridges**—Three other vehicular bridges now cross the Missouri River at Kansas City. One is the antiquated Hannibal Bridge, which also carries heavy rail traffic between the two counties. It was erected over six decades ago, and was heavily damaged in the flood there last July. The city has begun studies for a replacement.

The second is the main entry into the central Kansas City area from the north. It is the Armour-Swift-Burlington Bridge, commonly called the A-S-B bridge. Three years ago it was resurfaced.

The third will be the former Milwaukee R. R. Bridge, now being converted to highway use and renamed the Chouteau bridge.

• **Location**—The new Paseo bridge would be erected about a mile east and downstream of the present A-S-B bridge, and about one and a half miles west and upstream of the rebuilt Chouteau bridge.

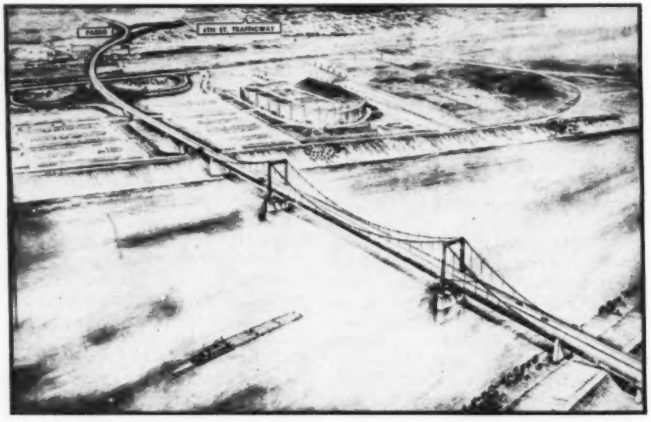
The Paseo bridge, Mr. Bergendoff said, could be completed by December, 1953, if financing arrangements could be made soon. A construction permit has been granted by the Secretary of the Army.

The Jackson County Court (corresponding to a board of county commissioners) has under advisement an offer of the engineering firm to handle details relating to the issuance of bonds and management of the span.

Mr. Bergendoff estimated the toll revenue would be about $400,000 the first year, and would increase each year of a 30-year amortization planned as the period of the revenue bonds.

II. Mississippi projects

Plans for two bridges across the Mississippi River are making new advances.



PASEO BRIDGE planned for Kansas City is seen in this artist's drawing viewed from the Clay County side of the Missouri River. The structure shown near the center is a proposed municipal stadium.

In New Orleans, La., details of proposed construction of a $40-million toll vehicular bridge between the site of the old Texas and Pacific Railroad ferry landing and Algiers were disclosed. Plans have been recommended by the engineering firms of Masters and Henderlite as the result of a $250,000 federal-state survey.

The project would be financed by revenue bonds issued by a bridge authority yet to be created. It would consist of four vehicular roadways, and would link with the proposed Pontchartrain expressway. Legislation to enable financing and construction is in preparation.

• **Law passed**—Legislation looking toward construction of a $6-million bridge across the Mississippi River between Friars Point, Miss., and Helena, Ark., has been enacted by the Mississippi Legislature.

The legislature has created a special bridge district in the North Mississippi delta with authority to issue bonds and levy taxes to finance construction of the state's part of the bridge.

Plans would provide for $2 million each from Mississippi, Arkansas and the federal government.

III. Kanawha bridge

Work is scheduled to start this week on a $3-million bridge over the Kanawha River near Charleston, W. Va.

Designed by A. L. R. Sanders of Hazlet and Erdal, Chicago, it will be 3,800 ft long with approaches. It will be of the cantilever girder type and resembles in everything but size the cantilever bridge across the Mississippi River at East St. Louis. Contractor is William J. Howard, Inc., Chicago.

IV. Bridges for Maine

Using previously granted borrowing authority, Maine plans to issue $12 millon in highway and bridge bonds about Aug. 1. Of the total, $7 million will be for construction of the Fore River Bridge at Portland; $1 million to start a new $2.5-million Bangor-Brewer Bridge.

• **Elsewhere**—A new Kentucky law authorizes creation of a commission to build not more than two new bridges (at an estimated cost of $20 million) between Louisville and southern Indiana. The commission is to issue revenue bonds to finance the project; may restore tolls on Clark Memorial Bridge to help pay off the bonds.

Usefulness of a Michigan legislature bill authorizing construction of a $87-million bridge across the Strait of Mackinac appeared doubtful. It prohibits use of state funds for planning, construction or operation. The Mackinac Bridge Authority is empowered to finance all preliminary planning and surveys with revenue bonds issued in anticipation of toll receipts.

NEWS BRIEFS

• **Big award**—Secretary of Interior Chapman last week announced award of a $29-million contract to a joint-venture by J. A. Jones Construction Co. and Charles W. Tompkins Co., for construction of Palisades Dam and power plant in Idaho—largest earth-fill dam ever undertaken by the Bureau of Reclamation (ENR June 28, 1951, p. 27).

• **Permits ordered**—In Ohio, the State Water Pollution Control Board announced that 183 canneries, dairies and meat processing firms must get permits to dump wastes into Ohio streams by Sept. 27. The new pollution abatement law requires issuance of permits if practical means of treating wastes are available. The board will meet again in May to consider the status of sewage treatment by the state's nearly 600 municipalities.

• **Road building**—A $21-million highway construction program for the 1952-53 fiscal year beginning July 1 has been approved by the Arkansas Highway Commission. There is little likelihood that more than half of it will be contracted before July 1, 1953, because of lack of funds. Gov. Sidney McMath's administration last week lost the first round of litigation touched off by the Arkansas Highway Audit Commission disclosures of "shocking waste and extravagance" in highway department operations (ENR Feb. 21, p. 26). A Circuit Court jury held that the state is entitled to recover $2,961 in contributions made by a Monroe County group for highway improvements and allegedly diverted to McMath's 1950 campaign fund.

Correction on photos

Through error, the captions under two pictures appearing on page 22 of our issue of April 24 were transposed. Brig. Gen. Don Shingler and chief of his engineering division, Wendell Johnson, who led the heroic flood defense of Omaha and Council Bluffs, appeared on right. Col. Henry Hoeffer, who directed flood-fighting strategy, appeared on the left.

C. L. WARWICK, secretary of the ASTM for 34 years and recognized as an outstanding authority on materials, died at a society meeting on April 17. Mr. Warwick was presiding at the dinner when stricken.

C. L. Warwick dies; was ASTM secretary

C. L. Warwick, 63, executive secretary of the American Society for Testing Materials, died April 13 while he was presiding at a society dinner.

Since 1919, Mr. Warwick had been with the organization either as secretary-treasurer or executive secretary. He was a 1909 civil engineering graduate of the University of Pennsylvania, and later taught there as Assistant Professor of Structural Engineering.

At the university, Mr. Warwick studied under Prof. Edgar Marburg, who in 1902 had become the first secretary of the ASTM. When Professor Marburg died in 1918, Mr. Warwick succeeded him. Thus, ASTM, which will celebrate its 50th anniversary at a week-long meeting in New York City June 23 to 27, had only two secretaries in its long history.

Mr. Warwick had made many notable contributions to the field of standardization and research in materials and was recognized as an outstanding authority on materials. He served on the War Production Board during World War II as head of the specifications branch of the Conservation Division, and later as head of the Materials Division. He was also the author of a large number of technical papers dealing with properties and tests of engineering materials.

The dinner over which Mr. Warwick was presiding at the time he was stricken was in honor of J. K. Rittenhouse, who was retiring after nearly 43 years of service with the society.

How Bitumuls paved Eniwetok at "Stateside costs"

Bulk loads of easily-transported BITUMULS® made possible paving isolated Eniwetok at costs comparable to those of the California Highway Department. By million-gallon tankers, then from tanker to barges, from barges through submarine invasion pipe-line to shore tanks—Bitumuls was delivered to Eniwetok.

American Bitumuls & Asphalt Company specialists helped the engineering and construction firm of Holmes & Narver, Inc. develop a crushed coral and coral-sand mix with a special Mixing Grade of Bitumuls that is miscible even with ocean water. This stable, cold-mixed paving material was produced and placed in record time despite difficult tropical conditions on the atoll.

Proved on many offshore jobs, Mixing Grades of Bitumuls are ideal for treating virtually all available aggregates. Quick-Setting Grades of Bitumuls are favored the world over for armorcoat and macadam work. High Viscosity Bitumuls is recognized by most state highway departments as standard for surface treating.

Nation-wide there are Bitumuls Engineers working out of strategically located plants. These men are specialists, qualified by training and varied experience to consult with you, to your advantage, about your paving needs . . . roads, parking areas, airports.

Bitumuls is ready for prompt delivery to your job site.

AMERICAN
Bitumuls & Asphalt
COMPANY

200 BUSH ST. • SAN FRANCISCO 4, CALIFORNIA

Providence 14, R. I. Perth Amboy, N. J. Baltimore 3, Md. Columbus 15, Ohio
St. Louis 17, Mo. Mobile, Ala. Baton Rouge 2, La. Tucson, Ariz. Inglewood, Calif.
Oakland 1, Calif. Portland 7, Ore. Seattle, Wash. Washington 6, D. C. San Juan 23, P. R.

MANUFACTURERS OF ASPHALT AND ASPHALTIC PRODUCTS

LABOR LEADER ASKS FOR LABOR PEACE. Joseph C. Keenan, secretary-treasurer of AFL Building and Construction Trades Department, wants an end of strikes.

AFL leader warns labor

Joseph C. Keenan, secretary-treasurer of the AFL Building and Construction Trades Department, warned that the wave of strikes, jurisdictional disputes and wildcat walkouts must stop.

Keenan, one-time director of the Labor League for Political Education, addressed a meeting of the Illinois Building and Construction Trades Council in Springfield last week.

He said that labor groups are "literally cutting themselves out and if they don't stop bickering, labor will go back 20 years—and it will be hard to get back on top again".

His address keynoted the two-day conference which was faced with the problem of working out resolutions that might eventually lead to the end of jurisdictional disputes, a serious problem especially with Illinois construction men.

Not all of his remarks were pessimistic. At one point he predicted a great rush of construction work during 1952 and 1953. "Labor," he said, "will be asked to work overtime as much as a ten-hour day on a six or seven day week basis. The Department of Labor will call men from surplus labor areas to go to other jobs."

He thus intimated that construction labor must put its house in order.

Backing up Keenan's words came these reports of strikes and disagreements:

A four-county walkout of five basic AFL building trades tied up millions of dollars worth of construction in Milwaukee, Wis.

An estimated 7,000 workers from the key crafts stayed off their jobs in Milwaukee, Waukesha, Ozaukee and Washington counties. Last minute negotiations (ENR March 24, p. 30) with employers broke down two weeks ago.

The trades involved are: Laborers, cement finishers, operating engineers, iron workers and truck drivers.

Strike leaders have agreed not to negotiate contracts with individual employers but to insist on industry-wide agreements. In past disputes the building trades unions have often signed up individual contractors to force the association to capitulate.

Although the signal for the walkout

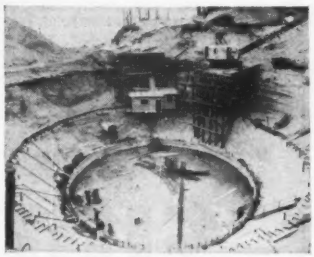
(Continued on next page)

HOW TO HANDLE
WET JOBS

#5 of a Series

PUMPING
STATION

City of Grand Rapids, Michigan
Contr.: Owen-Ames-Kimball



DRIED FAST; NO SHEETING
SILT PROBLEM OVERCOME

IN ONE MONTH from installation, the concrete base slab (4 ft thick, 71 ft diameter) was completed—deep down at 35 ft below water level. Half month more finished monolithic circular wall, 40 ft high.

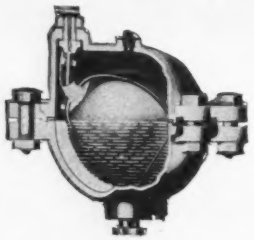
Such were the speeds and savings made possible by Griffin Wellpoint equipment, plus Griffin's long-acquired "know how," which assured correct wellpoint depths, spacings and jetting methods, on this tough-to-handle job.

• Despite 4 ft layer of fine sand and silt, pre-drainage was so thorough that bulldozer could work "on bottom" feeding to crane on trestle. Excavation was open cut, with one-on-one slope. Any wonder this contractor (who had previously tried Griffin "quick-dry" service) came back for a "second helping!"

GRIFFIN
WELLPOINT CORP.
881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.

In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Halifax

GET RID OF AIR ACCUMULATIONS IN PIPE LINES...



a BIG Trouble Saver that Costs You LITTLE!

When air lodges at high spots in pipe lines, it reduces the effective area of the pipe, creates a friction head, lowers pumping capacity, and may result in serious water hammer!

Simplex Air Release Valves bring you a sure, efficient cure for these difficulties . . . venting air *automatically before it can cause damage.*

The Simplex Air Valve is easily installed . . . positive in action . . . ample in capacity. Standard valves for pressures up to 250 p.s.i. . . . special valves for pressures up to 800 p.s.i. Thousands have been in successful use for over 30 years.

IT'S SIMPLEX IT'S ACCURATE

Write for free bulletin to Simplex Valve & Meter Co., Dept. 5, 6751 Upland Street, Philadelphia 42, Pa.

SIMPLEX
VALVE AND METER COMPANY

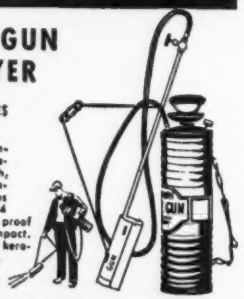
STOP FIRES FAST with **INDIAN FIRE PUMPS**

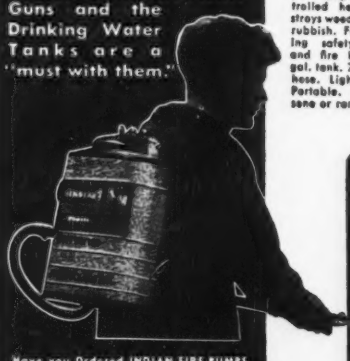
Protect property, guard lives with these famous back-pack extinguishers. Contractors and construction engineers find them very necessary in their outdoor work. The Flame Guns and the Drinking Water Tanks are a "must with them."

FLAME GUN SPRAYER

HUNDREDS OF USES

2000 degrees controlled heat. Destroys weeds, brush, rubbish. For burning safety strips and fire lanes. 4 gal. tank. 7 ft. oil proof hose. Light. Compact. Portable. Burns kerosene or range oil.





Smith INDIAN Drinking Water & Supply Tank

For carrying drinking water to fire fighting crews, and refilling Indian Fire Pumps. 5-gal. cap. Push button faucet. Carries by handle or slung on back.

Have you Ordered INDIAN FIRE PUMPS for Civil Defense? Be prepared!

Send for Full Details on INDIAN FIRE PUMPS and our Complete Line of Sprayers

D. B. SMITH & CO. 432 MAIN ST. • UTICA 2, N.Y.
"Originators of Sprayers Since 1888"

Labor . . .

was the breakdown of negotiations with the Building Trades Employers Association, two other major contractor groups are involved in the dispute. These are: the Associated Public Works Contractors, consisting of builders of streets, sewers and water mains, and the Milwaukee Master Plumbers Association.

Bricklayers and carpenters, the other two basic trades, remained on the job. Their operations will shortly be affected by the absence of laborers to mix mortar and truck drivers to bring in materials. These two trades' contracts do not expire until June.

• **Employer offer refused**—The employer group, headed by William Ouweneel of the Siesel Construction Co., offered a 10¢ an hour wage package retroactive to April 7.

The offer contained the provision, however, that the membership of the respective unions be permitted to vote a referendum on what portion, if any, of the 10¢ they wanted to assign to a welfare fund.

The unions refused to depart from their demand for a 15¢-an-hour increase plus a welfare plan which they estimated would cost the employers anywhere from 5 to 7¢ more an hour.

• **California strikes**—Construction on the $51-million Pine Flat Dam project on the Kings River near Fresno was shut down April 17, as the latest result of a wave of construction strikes in northern California.

The Pine Flat job was one of several in northern California—including the $7-million Broadway Tunnel in San Francisco—hit in advance of an April 21 strike date set by the Northern California District Council of Laborers.

Meanwhile negotiations continued with AFL carpenters in the four-county San Francisco Bay area, who were entering their fifth strike week. AFL pile drivers in northern California and Nevada are going into their fourth week of strike.

All groups are asking a 15¢ hourly increase, plus health and welfare benefits.

The Pine Flat work stoppage is particularly serious in view of the Corps of Engineers' efforts to gain all possible storage space to help control anticipated floods from the record Sierra snowpack. The corps plans to store water in the dam even though it is only half completed.

• **Boycott**—Because the North-Moller Co. Jackson Mich., general contracting firm, employed a non-union wrecking firm, a union boycott has been

placed on ten of its projects in Michigan.

G. M. North, head of the firm, said his firm was selected for the boycott because it is the largest in the Jackson Association of Contractors.

Principal objective of the union is said to be that a local laborers union be formed. Two previous attempts to organize such a union in Jackson were failures.

• **Schedule trouble**—About 1,600 craftsmen stayed away from their jobs at the $500-million Paducah, Ky., atomic-energy construction project. The labor trouble stemmed from a new work schedule and firing of eight workers.

Officials said the walkout started after F. H. McGraw and Co., the prime contractor fired five millwrights and three electricians for "loafing" on the job.

The unions insisted the men were not loafing but were awaiting materials.

Trouble has been brewing since announcement of a new five-day-a-week work schedule with each working day running 10 hours.

Company officials announcing the change said it would be more efficient, reduce travel time, and provide more pay and two consecutive days off for workers.

Unions representing carpenters and laborers, however, said their members would work two hours longer and, in effect, draw two hours less pay. They based this claim on the fact that the sixth day of work previously had been on an overtime—pay basis.

In spite of the general unrest on the labor front, some wage disputes were settled, and other strikes were averted by union-management agreement on new contracts.

Settled disputes

AFL carpenters and other building mechanics and laborers went back to their jobs at the Sedalia, Mo., U. S. Air Force Base after a two-day walkout. Building and common laborers pulled their strike in a wage dispute and the carpenters walked out because of the employment of nonunion labor at the base. General contractors for the project agreed to a 15¢ hourly increase, bringing the laborer's wages to $1.37½¢ an hour. If approved by the CISC, the new contract will be retroactive to Dec. 1, 1951.

• **Partial agreement**—In Syracuse,
(*Continued on next page*)

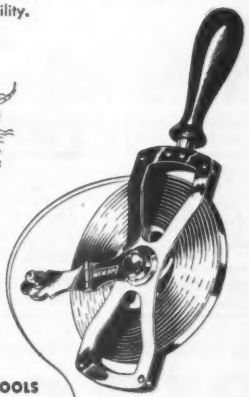
LUFKIN "MICHIGAN"

BABBITT METAL CHAIN TAPES

can really "take it"

ideal for railroad, highway, and other heavy duty outdoor measuring

In swamp, brush, desert, gravel pits, or wherever tough, dependable service is an absolute "must", the Lufkin "Michigan" just can't be beat. Every detail is designed to give an extremely durable tape. Deeply stamped babbitt metal bosses have jet black markings that stay easy to read through years of the roughest usage. Powerful steel frame, extra-long retractable handle, formed brass end clips. Tough steel line resists both rust and the wear of heavy duty measuring. Also available with the famous Lufkin Chrome-Clad line that gives plus protection on unusually severe measuring jobs. Line marked in feet, links or meters from 50 to 500 feet. When you buy, specify Lufkin "Michigan" for accuracy plus durability.



BUY LUFKIN

TAPES • RULES • PRECISION TOOLS
FROM YOUR SUPPLY HOUSE

THE LUFKIN RULE CO., SAGINAW, MICHIGAN

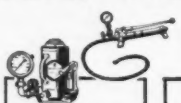
132-138 Lafayette St., New York City • Barrie, Ontario 184

Pick the right jack for the job

...from the world's most complete line of hydraulic equipment

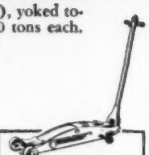
TWO EXTRA-HIGH-LIFT BLACKHAWK JACKS (Model EA-27), yoked together to pull well casing, have top height of 49½", lift 20 tons each. *Don't do it the hard way — do it the HYDRAULIC way!*

HYDRAULIC JACKS ...up to 100 tons



GAUGE-EQUIPPED JACKS

HYDRAULIC GAUGES—VALVES—FITTINGS



WHEELED HYDRAULIC JACKS

"PORTO-POWER" REMOTE-CONTROLLED JACKS—PUSH & PULL

POWER-DRIVEN HYDRAULIC PUMPS

HYDRAULIC PIPE BENDERS

HYDRAULIC KNOCK-OUT PUNCHES

YOU GET ALL THESE HYDRAULIC TOOLS ONLY FROM BLACKHAWK

BLACKHAWK

Save buying time when you need hydraulic equipment. Specify Blackhawk—and be sure you'll get the hydraulic tool that will match your requirements exactly.

Order from leading supply houses. Write for free catalogs. Products of Blackhawk Mfg. Co., Dept. J-3652, Milwaukee 1, Wisconsin.

Labor . . .

N. Y., half of the 600 striking AFL construction workers ended a four-day walkout. Seeking a 5¢-an-hour wage increase plus welfare fund the 300 returned to their jobs when contractors agreed to observe terms of a new contract now in dispute. Other workers await settlement before returning.

• **Bricklayers agree**—A two-week strike by Madison, Wis., bricklayers was settled with an 8-¢ an hour wage increase, subject to WSB approval, which brings the bricklayers pay to an hourly $3.08 . . . In Ohio, striking carpenters in the Anderson and Greater Cleveland areas returned to work after receiving hourly increases. Anderson carpenters compromised on a new wage scale of $2.35 an hour after striking for a $2.50 raise. Effective May 1, 9,000 Greater Cleveland carpenters will get 25¢ hourly pay hikes.

New contracts accepted

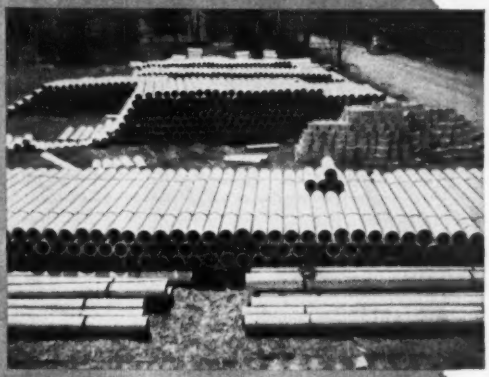
Alaska construction trades workers last week won WSB approval of a 20¢ an hour across-the-board wage increase. The agreement, representing a slash of 5¢ from the proposed 25¢ increase placed before the board by unions and the AGC, affects more than 5,000 workers.

• **Ironclad agreement**—A new contract containing an ironclad guarantee against work stoppages and other provisions for the uninterrupted flow of manpower has been signed in St. Louis, Mo. The signatories are AFL plasterers and lathers and 110 contractors in the area. The contract contains no change in the prevailing $3 an hour wage scale for commercial, industrial and public construction projects, or the $2.75 rate for residential construction.

In Fort Wayne, Ind., union officials announced WSB approval of new 15¢ an hour wage hikes for bricklayers, stone masons, tile layers and terrazzo workers.

Labor briefs . . .

• **Union protests**—In Akron, Ohio, a protest that county commissioners could reduce costs on the projected Bath Road Bridge has been voiced by representatives of the carpenters, operating engineers and painters and glaziers locals. The union contends that costs could be cut by contracting out the construction instead of using county forces. Estimated cost of the bridge is $20,000 while the county recently paid $34,000 to a private contractor for a span only slightly larger.



Storage of "Century" Pipe and "Century" Simplex Couplings is shown here on site in New England preparatory to installation.

"Century" Pipe awaiting installation.

"CENTURY"

ASBESTOS-CEMENT PIPE gives a New England town 19 miles of trouble-free water mains

Thus, another community is added to the growing and already large number of places in every State where this modern water main has been adopted.

Right from the start this modern water system provides economical operation by the relatively low cost of installation and reduced carrying charges plus the advantages inherent in the pipe itself.

Made of two practically indestructible materials, asbestos fiber and portland cement, "Century" Pipe is strong and durable. It is highly resistant to external corrosion and internal corrosion (tuberculation) cannot take place due to its non-metallic composition. The permanently smooth inner surface guarantees continuous flow and minimum pumping costs.

It will pay you to investigate the many cost saving features of "Century" Asbestos-Cement Pipe.

K&M ASBESTOS ROPE

For yarning bell and spigot joints will not promote the breeding of bacteria. Write for details.

WRITE FOR FREE BOOKLET, "Mains without Maintenance". Gives valuable data, specifications, and reference material for anyone interested in water main pipes.

Nature made Asbestos . . .
Keasbey & Mattison has made it serve mankind since 1873

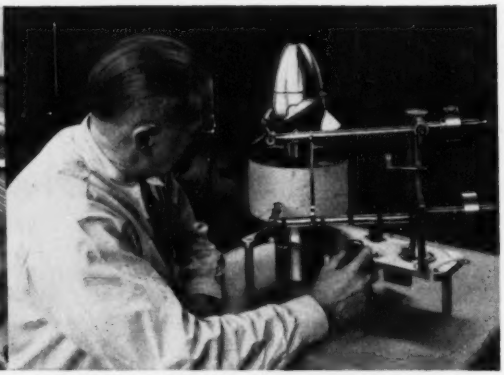
KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

"See us at Booths No. 13 and 14, American Water Works Association Convention, Kansas City, Missouri, May 4-9, 1952"

RESEARCH *and*

...the reason BALDWIN TURBINES consistently give Higher Efficiencies and Better Performance

SKILLFUL PATTERN MAKERS carefully form miniature runner blades to the exact shapes planned by the designers.



COMPLEX CONTOURS must be checked hundreds of times before a runner is just right and suitable for testing.

ENGINEERS at Baldwin studying strains in the joints and 1⅝" walls of a 260,000-lb. scroll casing under 285-lbs. hydraulic pressure. Adoption of welded casings at Baldwin is saving 20 to 30% in weight and reducing costs up to 20%.

Undoubtedly you've heard a lot about the *highest efficiency record ever obtained on an impulse-type turbine*—a recent installation by Baldwin. And, of course, you are familiar with the correspondingly high efficiencies of Baldwin-built propeller and Francis-type units.

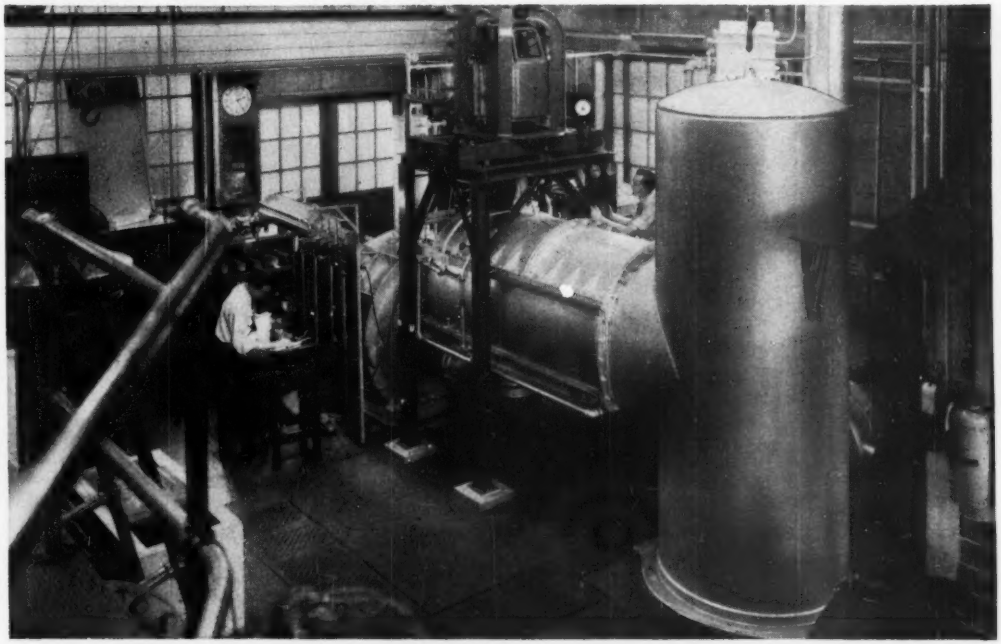
There's a definite reason for this—the pioneering research carried on at Baldwin to improve minor as well as major design characteristics.

Through the years we've tested hundreds of radically-designed model runners, draft tubes, scroll casings, etc.—as well as the widest variety of standard models. And each day we run new tests in our hydraulic laboratory to further extend our field of knowledge.

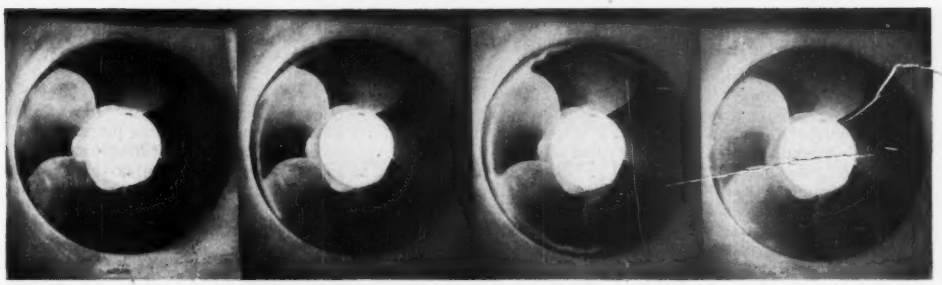
It is this continuing research—plus experience in designing and building all types of turbines for more than a century—that explains the high efficiencies of Baldwin turbines.

BALDWIN

more RESEARCH!!..



SPECIAL CAVITATION equipment enables Baldwin engineers to carefully study this destructive phenomena under a variety of heads, speeds and other variables.



TYPICAL of the cavitation photographs taken by Baldwin engineers are these made on an 11-inch runner. Baldwin was the pioneer in this country in this field.

EDDYSTONE DIVISION
BALDWIN-LIMA-HAMILTON CORPORATION
Philadelphia 42, Pa.

PELTON WATER WHEEL COMPANY
2929 Nineteenth St., San Francisco 10, Calif.

BALDWIN · BLH · LIMA-HAMILTON

-LIMA-HAMILTON

BOULDER CITY, NEV., will eventually become a completely autonomous city if the transition scheme just started is carried out to completion. Now having a population of 4,000, it was built to house construction and operating personnel for Hoover Dam.

Federally-operated town breaks trail to freedom

On May 19, Harold N. Corbin takes office as city manager of Boulder City, Nevada. That action marks a significant step in the transition of Boulder City from a federally owned and controlled town to a completely independent municipality organized under the laws of Nevada.

The procedure has been tortuously slow so far and it may take many years to bring it to completion. In the process of the evolution of Boulder City to independent status, precedents will be set that may be followed at other government towns—the permanent towns at Hungry Horse, Grand Coulee and Davis Dams, for example. Or the general pattern established might even be followed at the AEC communities at Oak Ridge, Richland, Los Alamos, and elsewhere in the country.

• **New administrative setup**—The main effect of Corbin's appointment is to divorce the town administration from the operation of Hoover Dam. In other words a separate division reporting to the Bureau of Reclamation's Regional Director is now established. Before this, the town was run as part of the power division. Corbin is charged with establishing administrative and budgetary procedures that will lead to the next steps that must be taken in Boulder City's new program of freedom.

Establishment of a separate city administration is an essential part of Phase I of three phase steps recommended as result of a survey made two years ago. The USBR retained Henry Reining, Jr., professor of public administration and political science at the University of Southern California, to make an impartial survey with recommendations for a course of action.

Reining found the need fo separate status for Boulder City and suggested a procedure by which that could be accomplished.

• **Construction camp first**—But let's backtrack and see how Boulder City developed. It was built as a construction camp and permanent operating town for Hoover Dam (ENR Nov. 26, 1931, p 846). At the peak, 8,000 people lived in Boulder City.

In recent years it has been living area for employees of several agencies and power contractors including the Bureau of Reclamation, Bureau of Mines (operates an experimental laboratory), National Park Service, Southern California Edison Co., and the Los Angeles Department of Water and Power (ENR, June 26, 1947, p 87). Many of these employees live in houses owned by the agencies and provided rent-free or at a nominal rental.

Other homes were built on ground leased from the government. Living there are operators and employees of local businesses. Anybody wanting to live in Boulder City can do so if they sublease or purchase a leasehold.

So, costwise there are two living standards—those living in government-owned houses at a low cost and those living in houses built on leased ground. Long waiting lists have to be endured for the government housing. And appropriations for new facilities were killed by the Bureau of the Budget.

• **Reining's findings**—That was the situation when Reining was called in. He did a thorough job at impartially dissecting the forces extant in Boulder City. Reining found many willing to retain the status quo—cheap rent and no gambling, liquor or other vices. He found others anxious to make Boulder City into an important western crossroads town with emphasis on tourists and a resort atmosphere. He saw an increasingly difficult tax and subsidy problem as well as a ticklish police problem. He saw conflict of government agencies lying under the surface. And, maybe most important of all, he saw people without a voice in their local government.

Reining recommended a three-phase "liberation" of Boulder City. His analysis showed that both the people and the government would benefit in the long-run.

Last July the Secretary of the Interior took the first step in implementing the Reining program that the Interior Department now plans to follow. By executive order he wrote the city charter from Phase I. This set up the job of city manager and gave him specific tasks to do.

Then the civil service commission took over. The aid of a local advisory committee was enlisted to help select the key man. This group included four elected at large in the first municipal election held in Boulder City.

• **Corbin's experience**—Harold N. Corbin, city manager of Porterville, Calif., was selected for the important task of organizing Boulder City for municipal type management. Corbin has just completed a four year organizational job at Porterville—an agricultural center in the San Joaquin Valley. Before that he spent eight years in various Oakland, Calif., municipal posts. He

(*Continued on page 38*)

NEW!

High Speed
Low Price
Premium Prints

the COPYFLEX "30"

Here, for the first time, is a copying machine – Bruning's remarkable Model "30" COPYFLEX – that combines such a relatively *high speed* with such a *low price* and such *premium quality*, ready-to-use prints.

The "30" is ideal for the drafting room or office with medium volume requirements and a moderate budget. It handles cut sheets or roll stock up to 42 inches wide, and offers features ordinarily found only in larger, more expensive machines.

With the "30" and the unsurpassed line of sensitized COPYFLEX papers, cloths and films, you can always get the kind of premium prints you want, when you want them.

Why wait on inadequate equipment or for "outside" copying? See how the COPYFLEX "30" can save your time, cut your costs. Just send in the coupon *now!*

Only *COPYFLEX* gives you all these advantages!

- Premium quality prints ready for immediate use
- No installation – simply make an electrical connection
- No fumes or exhausts because it uses no vapor developer
- Unexcelled range of sensitized papers, cloths and films
- Anyone can operate a COPYFLEX machine with a simple 5-minute explanation

MODEL "93"—finest of copying machines. There's a COPYFLEX machine that's just right for every price and volume requirement.

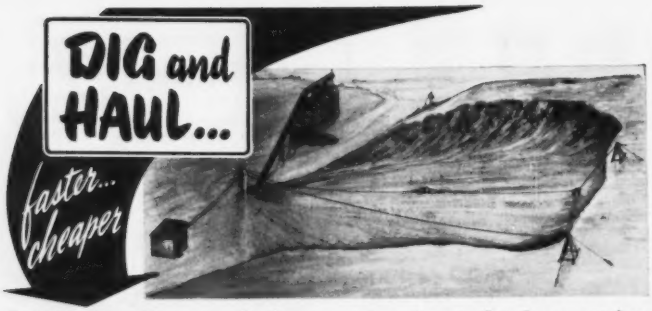
BRUNING

Specialists in copying since 1897

CHARLES BRUNING CO., INC.
Dept. F-52 Teterboro, New Jersey

☐ Send me free booklet on COPYFLEX "30."
☐ Show me COPYFLEX in action (no obligation).

Name ..... Title .....
Company .....
Street .....
City ..... Zone ... State .....



above—Sauerman Drag Scraper cuts deep into hill and moves gravel to crusher

With One Man SAUERMAN SCRAPER

Why complicate what should be—and can be—a simple job? All you need to move material quicker, at lower cost, is an efficient Sauerman Scraper machine—the heart of which is the uniquely shaped Crescent scoop. The patented design of this bottomless "bucket" permits faster loading to capacity . . . smooth travel of load over the top of material . . . clean, automatic dumping at discharge point. One easily trained man can handle the entire operation as well as the small amount of maintenance required. First cost of a Sauerman Drag Scraper is moderate and Diesel, gasoline or electric power consumption is light, considering the tonnages handled.

Sauerman Engineers are always ready to consider your particular digging or stockpiling problem—to give you the most practical and economical solution to this problem.

Write today for free, illustrated booklet

¾ cu. yd. Sauerman scraper moves 1½ ton load of crushed ore from stockpile to hopper. The round trip ranges from 200 ft. to 600 ft. and the scoop averages 40 trips an hour.

Here is a Sauerman Crescent scoop equipped with a trolley carrier for a track cable scraper installation. This type of installation, with the head end elevated considerably above the tail end, permits gravity return of the empty scoop from dumping point to digging point.

Rope Haulage Equipment Specialists Since 1909

SAUERMAN BROS., Inc.

532 SO. CLINTON ST. CHICAGO 7, ILL.

ONLY PLASTEEL GIVES YOU THE PERMANENT PROTECTION OF MICA

Plasteel MICA makes the DIFFERENCE

ROOFING and SIDING

- Mica resists the weather
- Mica reflects solar rays
- Mica needs no paint
- Mica needs no repairs
- Mica adds extra protection, beauty, economy!

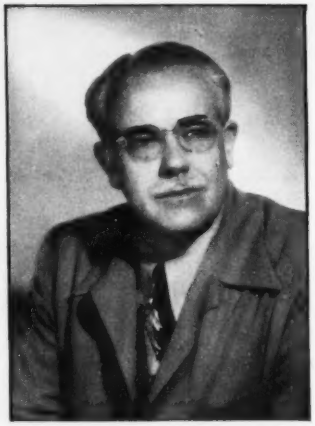
For complete details, attach this advertisement to your letterhead and Mail Today

PLASTEEL PRODUCTS CORPORATION

WASHINGTON, PENNSYLVANIA

Offices in Principal Cities

Municipal . . .



NEW CITY MANAGER, Harold N. Corbin, has the responsibilty of developing municipal type organization as an early step in Boulder City's independence.

is a graduate architect from the University of California.

The speed with which Boulder City will pass through Phase I, Phase II, and Phase III will depend largely on Corbin. Also involved will be Congress. Up to now no new laws have been needed. But Congress will have to pass legislation to make Boulder City a separate U. S. governmental autonomous city as indicated in Phase II. And later both the state and federal legislatives will have to act to make it a completely independent city—the end result suggested in Phase III.

There are many problems to be met. Some are arising now—how much should Clark County, Nev., tax leaseholdings in Boulder City? This year it varies from $2.91 to $16.95 per house. And when, if at all, should land actually be sold to private individuals? What controls should there be over gambling and liquor? These will be met, solved, and as precedents, established for similar towns now administered by the federal government.

Other of Boulder City's problems that will have to be solved even after the area is freed of federal domination are:

Schools in Boulder City—such as a new high school recently completed—have been built with federal funds. Some degree of federal support will still be necessary.

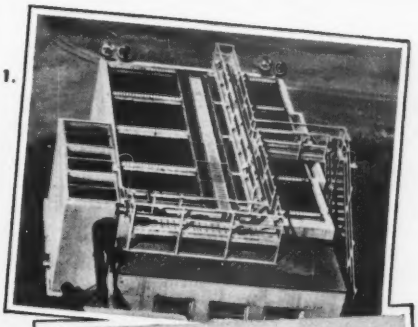
The government will continue to occupy administrative buildings and offices which it owns and built in the past. Presumably it will occupy them in the same manner they do in any independent city.

(Continued on page 41)

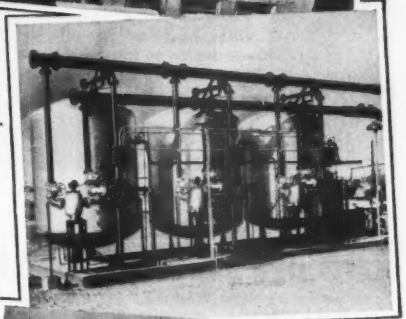
4 major reasons why Permutit is

WATER CONDITIONING HEADQUARTERS

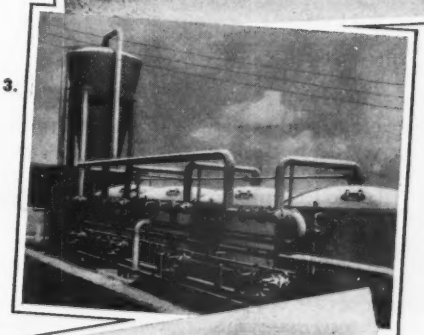
1.



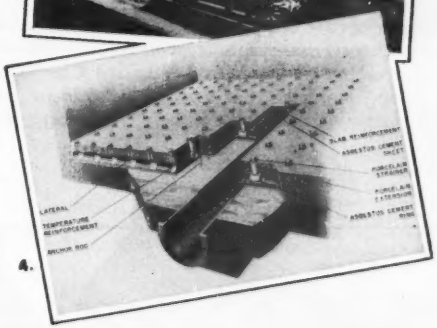
2.



3.



4.



WATER CONDITIONING HEADQUARTERS for 40 years, The Permutit Company pioneered in the application of ion exchange in water treatment. Permutit's *complete* line of water conditioning equipment is engineered and constructed to meet all needs.

1. *PRECIPITATORS* — A reaction and settling tank requiring less space, less chemicals and less time than previous designs. Permutit Precipitator softens water . . . removes impurities . . . lowers alkalinity content. Available in sizes having daily capacities varying from *one thousand* to *ten million* gallons.

2. *ION EXCHANGERS* — Hardness in municipal water supplies is objectionable because of its scale-forming, soap-destroying properties. Hardening elements can be *simply* and *cheaply* removed by passing water through tanks containing Permutit Zeolites. Water softening occurs when Zeolites attract the hardening ions—calcium and magnesium—and exchange them for sodium ions.

3. *SPIRACTOR* — A *space-saving* cold lime-soda water softener with a new principle—*catalytic precipitation*. Hard water plus chemicals enter shell and swirl upwards through catalyst granules. Precipitates deposit on granules by accretion . . . fall to bottom . . . are drawn off and *easily* disposed of. *Total reaction time is 8 minutes.*

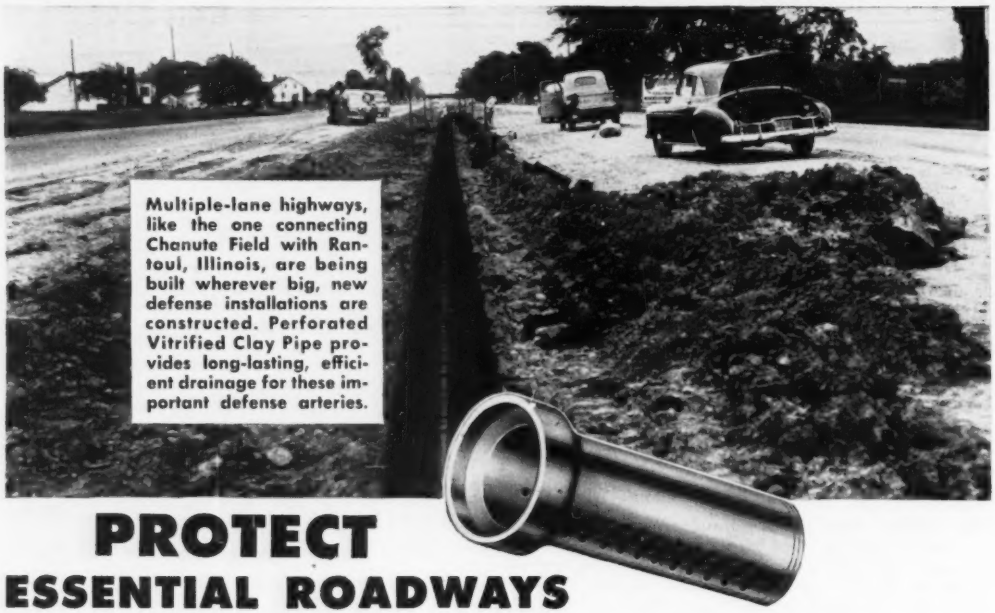
4. *MONOCRETE UNDERDRAIN* — Non-corrodible monolithic construction is rigid and inexpensive. Large laterals and header consist of conduits cast in concrete . . . assure uniform collection and distribution of water. Laterals are formed by inflatable rubber tubes which are removed after concrete has set. Porcelain extension stems, containing porcelain strainers, extend from header and laterals to concrete surface.

Write for further information on these and other types of water conditioning equipment to The Permutit Company, Dpt. ENR-5, 330 West 42nd Street, New York 36, N. Y., or to Permutit Company of Canada, Ltd., 6975 Jeanne Mance Street, Montreal.

WATER CONDITIONING HEADQUARTERS
FOR 40 YEARS

PERMUTIT

CLAY PIPE—*ESSENTIAL* ★ *ECONOMICAL* ★ *EVERLASTING*



Multiple-lane highways, like the one connecting Chanute Field with Rantoul, Illinois, are being built wherever big, new defense installations are constructed. Perforated Vitrified Clay Pipe provides long-lasting, efficient drainage for these important defense arteries.

PROTECT ESSENTIAL ROADWAYS

WITH PERFORATED CLAY PIPE

America's roads are worn out!

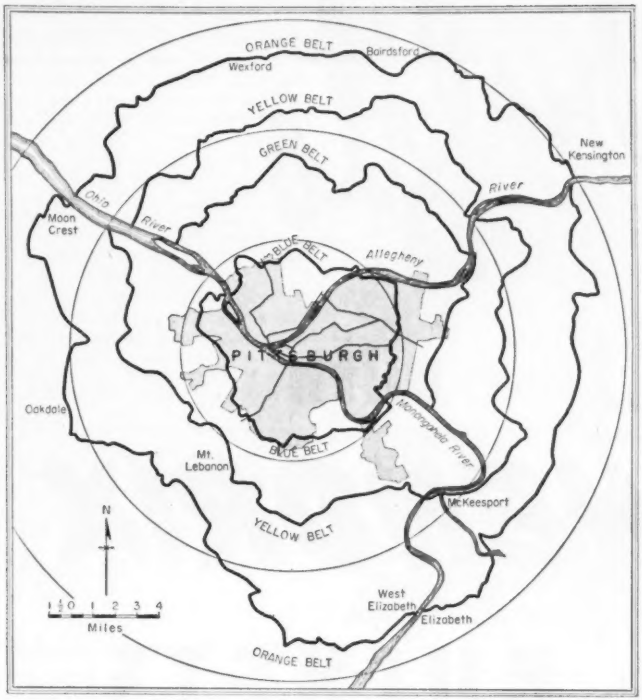
Repair and expansion programs are underway in every state in the Union — getting highways in shape for the heavy traffic demanded by today's defense program. That's why Perforated Clay Pipe is so important these days . . . it provides the *only* drainage systems that *never wear out.*

Roads are only as good as the drainage that protects them from frost-heave, erosion, and weather-damage. And Vitrified Clay is the one material that assures *permanent* protection. It can't be affected by electrolytic soils, acid ground waters, or any deteriorating agent. It stays in place — strong, round, smooth, *safe* — guarding essential roadways for the newly-important traffic they must bear.

NATIONAL CLAY PIPE MANUFACTURERS, INC.

311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
206 Connally Bldg., Atlanta 3, Ga.

C-452-2



PITTSBURGH TRAFFIC WEB—The "Belt Route Plan," utilizing existing city, county and state roads relieves congestion on radial routes leading to downtown Pittsburgh as well as offering a speedy by-pass for travelers going beyond the city.

New belt routes sub for construction

Engineers are weaving a spider web of new traffic routes around and over the rugged terrain of populous, hilly Pittsburgh.

Known as the "Belt Route Plan", the new system consists of a series of concentric circles in the outlying areas. The purpose is to ease traffic congestion on radial routes leading to Pittsburgh's downtown Golden Triangle.

• **Belt routes use existing roads**—Out of the bewildering maze of thoroughfares in suburban Pittsburgh, these routes were chosen. Milkmen, salesmen, truckers and others familiar with the maze use many of the roads now as shortcuts. Before the roads were incorporated into the Belt Route Plan they offered most motorists only a good chance to get lost.

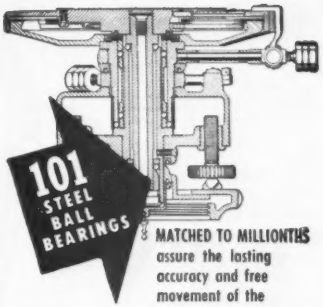
As created and fostered by the Allegheny County Transit and Traffic Commission, the plan consists of five routes in the north, four routes in the east and three in the South. Two of the routes are complete circles around the county. A third also encircles the county but lacks a connection at Coraopolis due to the absence of a bridge to North Side Pittsburgh.

• **How plan works**—Besides relieving congestion on radial routes, the plan gives suburbanites a quick route from one area to another without penetrating downtown Pittsburgh. It also allows motorists to skirt the city quickly if they are on a trip which takes them beyond the city.

By using existing roads, the plan puts to work little-used roads. Without additional costs of new roads, it revitalizes a big public investment made years ago.

Each belt has been given a designated, identifying color—red, orange, yellow, green, blue and purple, the last only in the planning stage.

(Continued on page 43)



MATCHED TO MILLIONTHS assure the lasting accuracy and free movement of the

BRUNSON BALL-BEARING BASE*

USED ON ALL BRUNSON SURVEYING INSTRUMENTS

Permanently lubricated and factory sealed against dust, the Brunson Ball-Bearing Base allows a total eccentricity of not more than + or — ¼ second of angular error. To obtain this accuracy, it is necessary for us to engineer and produce in our own plant these Bearings and spindles—each stabilized to the accuracy of precision gauge blocks. Because these ball bearings are pre-loaded and operate under tension, they remove all grease from the point of contact. This assures greater accuracy than any other type of bearing which must allow for grease or oil film. *Write for details.* **Patented.*

LASTING BRUNSON ACCURACY

BRUNSON INSTRUMENT COMPANY, INC.
1405 Walnut St. • Kansas City 6, Mo.

YOUR OWN SECURITY PROGRAM

Today, every plant needs security protection—to guard against dollar losses, and to prevent sabotage, thievery and accidents. Long-lasting Continental fence provides maximum safety for minimum investment. Contact nearest Continental sales office for a lifetime of protection and for your own fence "security program."

*Trade Mrks Reg. U.S. Pat. Off.

CONTINENTAL STEEL CORPORATION
Kokomo, Indiana

Please send FREE copy of "Planned Protection"—complete manual on property protection.

Name_____

Address_____

City_____ State_____

CONTINENTAL STEEL CORPORATION

more Profits with HENDRIX BUCKETS

3 TYPES

FOR

EVERY DIGGING PURPOSE

⅜ to 40 Cu. Yds.

With a Hendrix Bucket you're certain of full payloads in less time with greater ease, whether you're moving shale, sand, crushed stone or stripping overburden. Hendrix Buckets are designed to INCREASE PROFITS on any digging job and to CUT DOWN OPERATING AND MAINTENANCE COSTS. The strength of a solid mass is maintained, yet weight lessened, through a scientific arrangement of perforations. With a HENDRIX you'll roll up yardage records hour after hour, day after day, at lower cost and bigger profits!

Hendrix Buckets May Be Special Ordered Without Perforations

HENDRIX *Lightweight* DRAGLINE BUCKETS

HENDRIX MANUFACTURING CO., INC.

MANSFIELD – LOUISIANA

Municipal . . .

• **Belts**—Total length of all belts is 268 mi, made up of 140 mi of county road, 77 mi of state highways, 45 mi of streets in cities or boroughs and six miles of unimproved township roads. At present, much of the mileage is unsuitable for heavy trucks. High speeds are not permitted.

The 109-mi Orange belt now is in use, following placing of identifying signs. At every turn, the signs bear a circle of the identifying color which glows at night in the light of approaching headlights. Distance to the next town is listed periodically. Similar signs are being posted on the Blue belt. The Orange belt is longest in the system—it makes a complete circle.

The Yellow belt is an incomplete circle in the north, east and south sectors of the county. The Green belt links north and east sectors.

The Blue belt, soon to be ready for use, is a two-hour drive. It is the smallest and most compact of the belts. The 40-mi Blue belt probably will get a little brother in the future—a 25-mi Purple belt within the Blue belt. The Purple belt will by-pass Saw Mill Run traffic and avoid congestion at the Liberty Tubes.

Subway off to slow start as short unit is planned

Contracts for the construction of the first section of the new Second Ave. subway will be let by the end of June, the city's board of transportation announced last week.

The first excavation is expected to be put down during the summer. The first link—890 ft along Chrystie St.—will grow to a full 29 mi when completed. Chrystie St. becomes Second Ave. north of E. Houston St.

In last year's election, city voters approved $500 million in special borrowing power for the city for rapid transit improvements. The first section will cost about $3.5 million. Board officials hope to let another $30 million in contracts by early 1953.

• **Why begin now**—The board was told by federal officials that some steel would be available for subway constructions. Before that the board had been reluctant to start in the face of shortages, financial uncertainty and the high costs of construction.

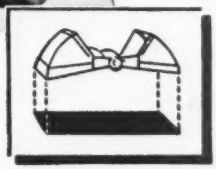
Even so the city officials have decided to proceed conservatively with this relatively slow start instead of the $125 million a year planned.

The problem of high costs has not been overcome, but some changes in design to permit use of reinforced concrete rather than steel will help.

(Continued on next page)

ERIE *Barge Type* Bucket

In this type the large deck area achieved means bigger payloads in stock piling and barge rehandling work. Erie's booklet on 2-line buckets gives you complete data on this type and 3 other classes of Erie Buckets. Write for copy today.

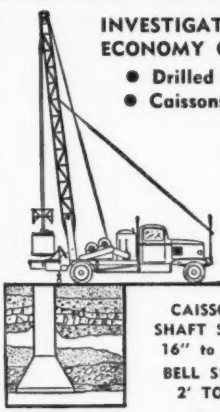


Compare DECK AREA

¾ Yd.	27.21 Sq. ft.
1 Yd.	30. Sq. ft.
1¼ Yd.	32.3 Sq. ft.
1½ Yd.	38.7 Sq. ft.
1¾ Yd.	42.4 Sq. ft.
2 Yd.	45.1 Sq. ft.
2¼ Yd.	53.5 Sq. ft.
2½ Yd.	57.6 Sq. ft.
3 Yd.	60.9 Sq. ft.

Write for Catalog 2L-2 *Today*

ERIE
STEEL CONSTRUCTION COMPANY
125 GEIST ROAD • ERIE, PENNSYLVANIA



INVESTIGATE ECONOMY OF
• Drilled Piling
• Caissons

CAISSON SHAFT SIZES 16" to 84"
BELL SIZES 2' TO 12'

CASEY & CASE
Foundation Co.
3163 Penobscot Building
Detroit 26, Mich.

Phone:
DETROIT .....WOodward 2-1389
CHICAGO .....CEntral 6-6579
LOS ANGELES ..UNderhill 0-1201
SAN FRANCISCO LAndscape 6-8622

Write for Bulletin

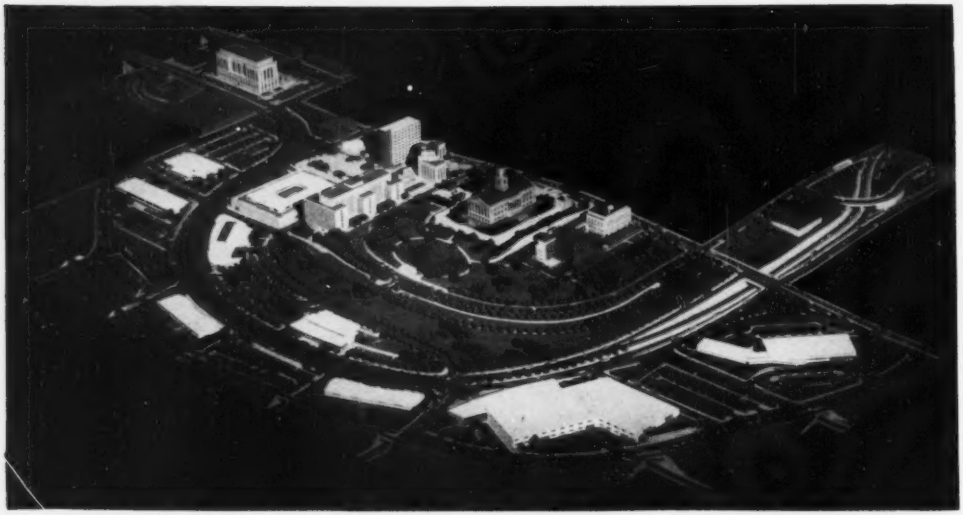
"GUNITE"
for repairs *and* new construction

1 Dam repairs and reconstruction
2 Thin wall construction
3 Bunker and stack linings
4 Tunnels and pipe linings
5 Structural steel encasement
6 Prestressed tanks
7 Restoration defective masonry structures
8 High and low pressure grouting

phone or write us for . . .
estimates **MU. 3-1973**

Many Years Experience of
Pneumatic Mortar Work

LEWIS & McDOWELL INC.
GUNITE ENGINEERS & CONTRACTORS
285 MADISON AVE., NEW YORK CITY



MODEL OF THE REDEVELOPED AREA. The buildings shown along the outer perimeter of the Capitol (in the center of the picture) are only an indication of the sort of buildings which would replace the present slum dwellings. (Photo by Ezra Stoller)

Tax income may rise as slums go down

Does slum clearance pay?

This question was answered with a resounding yes in the report of Clarke, Rapuano and Holleran of New York City on the Capitol Hill redevelopment project in Nashville, Tenn.

It pays taxwise the report states emphatically. The present tax income from the area to be redeveloped is $23,000, the anticipated income after redevelopment would be $178,500.

And this does not take into account the intangible expenses of slum areas such as: fire control, policing, disease and crime.

• **The area**—Under the Housing Act of 1949, the Nashville Housing Authority will acquire the land, clear it of slums and then sell it to private enterprise for redevelopment.

The housing authority will receive help from the city of Nashville, from the state of Tennessee and the federal government.

The project will clear and recondition about 93 acres of land in the vicinity of the state capitol. The area is known as Capitol Hill and contains extensive slums adjoining the capitol grounds.

• **Relocation**—Before the slums can be demolished both federal and state law requires that families in the area be relocated.

In Nashville there are seven housing projects under construction. When completed these projects will contain more dwelling units than the displaced families of the Capitol Hill project would require, thus solving the relocation problems.

• **Redevelopment** — Suggested improvements for the area other than those that will be erected by private enterprise are:

• A broad tree-lined boulevard running off the west end of the new Memorial bridge, and around the capitol grounds.
• Added parkways around the capitol.
• Construction of two new state buildings.
• Zoning changes which would allow for trucking terminals or other industrial, low-lying buildings around the fringe of capitol hill, and a new bus terminal for city buses.
• Clearing out buildings so that the capitol grounds can be seen where they are presently obscured on the east, west and north.
• Widening of some streets.

Economic studies

To find out—before investing a lot of money—whether or not the plan had good financial prospects the planners engaged expert real estate advice. The experts were the City Investing Company of New York City and the J. W. Denis Company of Nashville, Tenn.

The experts concluded that the prospects of the land being sold to and productively developed by private enterprise are good. The only conditions they put on their judgment was that the plan be executed in an orderly manner and that reasonably stable international conditions prevail.

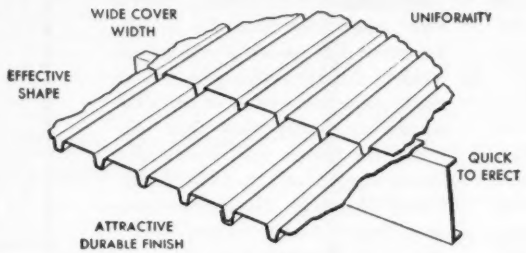
In general the consultants agreed that there is pressure and the needed power for expansion; that the Capitol Hill area is placed strategically to take advantage of this expansion; and that with a possible minor exception the redevelopment area would complement, not compete with, established commercial values.

• **Financing**—The cost of acquiring the land and existing buildings will be about $5.4 million. The cost of relocation of people living in the area, clearing the site, and constructing new streets and site improvements will be about $2.4 million. Thus without the expenses of undertaking and carrying out the project (administrative overhead) the cost would be about $7.8 million.

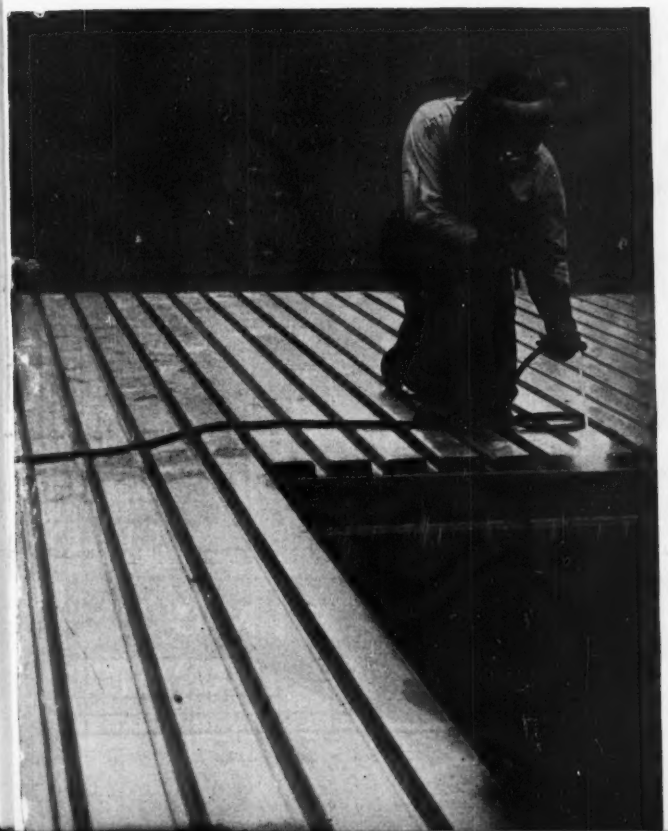
The administrative overhead will be about 20% of the full project cost.

(*Continued on page 47*)

ALL ROOF DECK MAY LOOK ALIKE, BUT . . . knowing a few important differences can save you construction time, trouble and expense. Here's what to look for:



Granco Steel Roof Deck has longitudinal ribs 1⅛" deep spaced on 5¾" centers and is available in 18, 20, or 22 gauge. The ribs are flared at one end permitting proper nesting at end laps. Maximum sheet length is 14' 4". Positive attachment obtained by welding.



EFFECTIVE SHAPE—*Are you getting maximum sheet strength?* You are if the roof deck you select has been designed to obtain the proper relationship between rib and flat. To give maximum strength and cover per pound of steel, there must be a proper ratio between these rib (tension) and flat (compression) sections . . . the same relationship you find in Granco Roof Deck! In addition, Granco Roof Deck has the same thickness as a 2" x 4" giving maximum flexibility for architectural design.

WIDE COVER WIDTH—*Will an excessive number of side laps weaken the roof?* An expanse of frequently lapped sheets cannot possibly offer as much resistance to concentrated loads as a wide seldom-lapped surface. That's why it's best to select roof deck for maximum width with a minimum number of laps. Granco Roof Deck has a wide cover width of 28¾" . . . wider than most competitive brands. That means more strength and safety, less welding, and on large jobs, a considerable economy in laying time.

UNIFORMITY—*Are the patterns identical in every sheet?* In most brands of roof deck, yes. But, there are exceptions. When hands and human judgment are employed in the forming process, slight sheet variances must occur. These variances are greatly multiplied when sheets are placed end-to-end. Don't risk improper fits, endless re-matching of sections and slow, costly job progress. Specify GRANCO STEEL ROOF DECK because Granco sheets are rotary press formed, *machine-made* for uniformity and perfect fit. "Sheet crawl" is virtually eliminated.

ATTRACTIVE DURABLE FINISH—*How will it look in 5, 10, 15 years?* Of course, that will depend largely on weather and atmospheric conditions in your locality. But, some roof deck is better prepared to withstand age and oxidation than others. Granco Roof Deck, for example, is protected with a tough, rust-resistant alkyd resin, baked on for longer life. Granco Deck looks better, lasts longer, creates a striking panel effect for ceilings, too.

QUICK TO ERECT—*Is your roof deck the correct shape for fast placement?* It *does* make a difference! Long, narrow sheets are cumbersome to handle, difficult to lay properly. The same applies to short, wide sheets. Granco Roof Deck, on the other hand, is a convenient shape for fast placement. Each sheet covers 34 square feet. Sheet dimensions were designed with speed in mind.

Write for Free Booklet—*Gives description, physical properties, complete loading tables and suggested specifications for Granco Steel Roof Deck. Write Department 12-6.*

SEE OUR LISTING IN SWEET'S CATALOGUE.

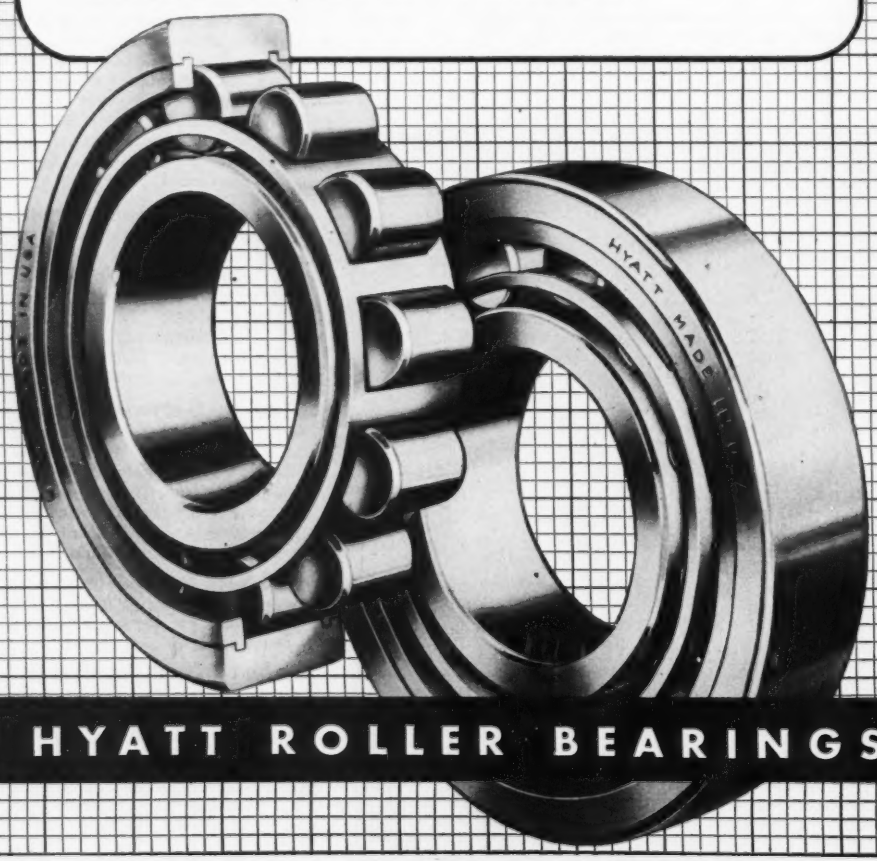
GRANCO STEEL PRODUCTS CO.
(Subsidiary of Granite City Steel Co.)
Granite City, Illinois

With HYATTS Built In Your Equipment Pays Out

When you buy new equipment for excavating, road construction, or maintenance work, be sure to check up on the quality of the bearings. This is mighty important.

Many of the leading equipment manufacturers have, for years, been building in Hyatt Roller Bearings so that the contractor may be sure of getting wear-free and care-free, long-lasting bearings designed for each application.

If the specifications read "Hyatt Roller Bearings," that's your assurance that the manufacturer has used the highest quality bearings he can get to make sure you will have smooth-operating equipment that can take the shock and carry the loads required in this field. Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.



HYATT ROLLER BEARINGS

Municipal . . .

The value of the reconditioned land will be about $2.6 million which when sold will be subtracted from the $7.8 million reducing the cost of the undertaking and the amount to be made up by federal money.

The report envisions private developers spending about $13 million for buildings in the area and they base the tax revenue on this figure.

• **Raising the money**—The city has already issued $1 million in bonds for the preliminary costs of the project. If the federal funds of $5 million are made available it will still be necessary for the city to raise another $1 million in bonds.

Slum clearing project aids flood control

Knoxville City Planning Commission has under consideration a project proposed by Knoxville Housing Authority which would eliminate the city's worst slum area. The project would make the area available for commercial redevelopment, and at the same time carry out a flood control program.

Commonly referred to as the Willow Street area, redevelopment of this section of between 25 and 30 acres near First Creek would cost the city about $440,000 and the federal government $880,000.

KHA Director Rex Wallace said final plans could be readied within six months and suggested a bond issue to cover the city's share of the cost.

Wallace estimated that the gross cost of redevelopment of this area would be $1.9 million but that the resale value of $500,000 would cut it to $1.4 million.

KHA decided to undertake this project after Washington housing officials had given "reasonable assurance" that channel improvements on that section of First Creek could be carried out as part of the redevelopment plan.

Frequent flooding has caused private interests to steer clear of this area for purchase and development.

• **Magnolia Ave. extension**—Final plans have almost been completed for redevelopment of an area designated as Magnolia Ave. Extension but since the current city administration has indicated its disapproval of this project, KHA has said it is holding up these plans temporarily. This project, which includes about 15 acres of blighted area, adjoins the right-of-way of the Magnolia Expressway now under construction (ENR March 27, p. 45). In

(Continued on next page)

. . . a tool for every job!

Having the proper tool for the job saves time and money for you . . . makes work easier on the operator. That's why you will find the wide range of tools offered by Brunner & Lay of such importance. For every tool there are many sizes . . . each type and size designed for a definite purpose. Shown are a few of these tools. For the exact tool to fit your job . . . let your dealer show you the complete Brunner & Lay line.

Brunner & Lay, Inc.
general offices and main plant
9300 KING STREET • FRANKLIN PARK, ILLINOIS

affiliated plants and warehouses
2425 East 37th Street
Los Angeles 11, Calif.
•
150 Leslie Street
Dallas, Texas

the reliable, leading source of supply since 1882

"BERG"
CONCRETE SURFACER
MODEL A

"Berg" equipment is used extensively for surfacing and finishing applications on concrete construction.

The many "BERG" Models available, permit exact selection for your particular application.

The distinctive "BERG" features give you the kind of results that are realized in better quality work, combined with lower costs.

"BERG" Heads and Attachments are interchangeable, thereby providing adaptability for vibrating, wire brushing, sanding and polishing applications.

THE CONCRETE SURFACING MACHINERY CO.
4667 SPRING GROVE AVE.
CINCINNATI 32, OHIO

UNI-BATCH
Cost Saving Equipment
Use With 6S to 16S Concrete Mixers—Inclusive

Charge bin with end loader having mechanical or hydraulic type bucket.

Pat. Pending

Pull unibatch behind pick up truck.

Write or phone for more details
Winslow Scale Company
Terre Haute, Indiana—P. O. Box 1198

Used In 30 Different States

Municipal . . .

a recent meeting in Knoxville, federal housing and city officials agreed to give top priority to the Willow Street project. A request to the federal government for funds for final planning on the Willow St. project will be made soon, Wallace announced.

• **Housing**—These redevelopment projects are tied in with housing projects built here, since the law requires that housing be furnished those whose homes are taken in redevelopment areas. A total of 1506 public housing units in four projects, costing about $12 million have been built or are nearing completion since 1940.

The administration turned a cold shoulder to KHA's Magnolia Extension project on grounds that private land owners should take part in the developing and criticized the proposal of the KHA acting as "middleman."

KHA pointed out that in the 15 acres under consideration, there are 86 different owners.

Moreover, the existing street layout was wasteful and inefficient, said the KHA.

The authority also pointed out that the tract should be planned as an integrated whole.

After the land has been cleared and made usable, then private owners can buy property at a fair market value, the authority said.

The KHA estimated that tax revenues could increase by more than 100% in the Magnolia Area.

• **Flood control**—The Army Engineer Corps, which has made studies of the First Creek Flood control problem, has indicated it could not launch a project itself in the near future but would lend every assistance.

The channel grade will have to be steepened and the channel bed straightened. Protection is desired from 11,700 cfs discharge.

Sewage treatment plant knocked out by flood

When the Mississippi River crested at El. 704.2 April 16 in St. Paul, Minn., it was 6 ft over effluent weirs of the sewage works' settling tanks. The Twin Cities' treatment plant had been put out of operation, and bypassed sewage went directly into the swollen river.

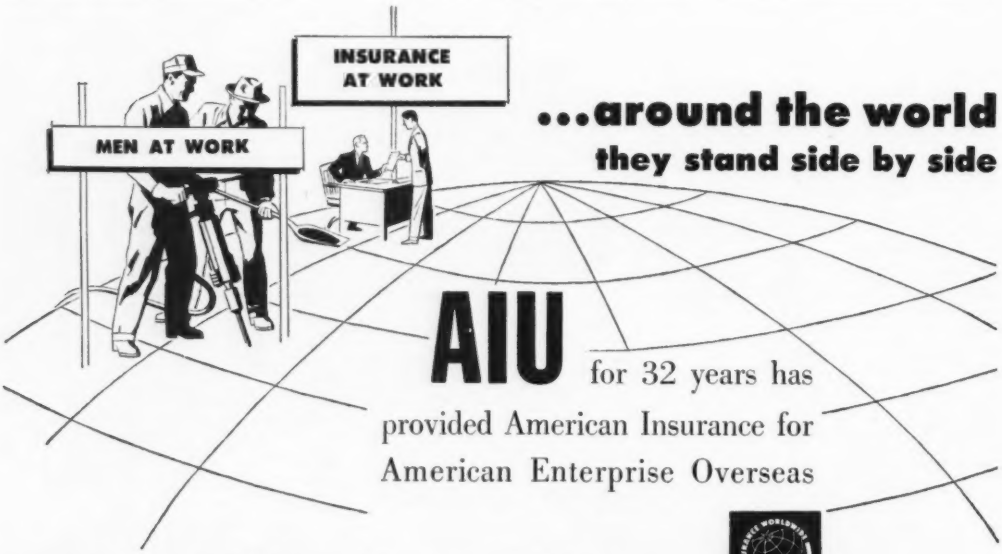
Here—described by Kerwin Mick, chief engineer and superintendent the Minneapolis-St. Paul Sanitary District—is the emergency flood control program that went into effect at the plant on April 9.

As river stage crept up from its normal El. 687 to 698 at the plant, preparations were made according to a well defined plan set down in 1949. At El. 698 operation was stopped. At 702.8 the protective river-ward dike was overtopped; plant grounds went under water making buildings accessible only by boat. River stage went 2½ ft above 1881 record.

But while the water rose protective measures were carried out. Low-level doors, windows, vents and manholes were closed; pipe galleries and tunnels were sealed off with sand bags and caulking. A basement garage door was bricked up.

Results: Three to four million dollars worth of equipment at basement level was kept from harm while water reached a 4-ft depth outside. What leakage did get in through electric conduit, pipe sleeves and construction joints reached a maximum of 4,000 gpm—handled by sump and auxiliary pumps. There was no power failure, although auxiliary power stood by.

As the river receded, water was pumped back out over the dike and minor repairs were made in preparation for resumed operation.



...around the world
they stand side by side

AIU for 32 years has provided American Insurance for American Enterprise Overseas

American International Underwriters • American International Marine Agency

102 MAIDEN LANE, NEW YORK 5, NEW YORK

New York • Washington • Chicago • Dallas • San Francisco • Los Angeles • Seattle

COMPLETE CLAIMS SERVICE WORLDWIDE

Get extra pulling power for extra-heavy loads!

Go Modern with

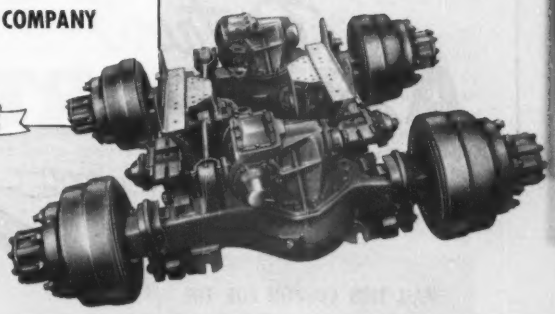
TIMKEN Detroit AXLES

A PRODUCT OF THE TIMKEN-DETROIT AXLE COMPANY

DETROIT 32, MICHIGAN

The Accepted D A Co Standard

TRADE MARK REGISTERED



Here's One More Reason Why!

Experience-Built Tandem-Drive Units!

Moving extra-heavy loads through rough terrain calls for an axle that can deliver plenty of pulling power! And you'll find Timken-Detroit Tandem-Drive Units are built to stand the most rugged type of operation whether on off-road terrain or general highway use.

These dependable tandem-drive units have positive drive—permitting full use of high-powered engines, resulting in increased tractive ability, faster schedules, and reduced operating costs. Parallelogram suspension of torque rods insures correct spacing and alignment of axles—eliminates possibility of weight transfer.

Designed, engineered and manufactured in their entirety by Timken-Detroit, these rugged units incorporate the best combination of axles and hook-up that over 30 years of engineering and manufacturing experience can produce. No other manufacturer can approach this record of achievement. The next time you buy six-wheelers, make sure they're equipped with Timken-Detroit Tandem-Drive Units.

WORLD'S LARGEST MANUFACTURER OF AXLES FOR TRUCKS, BUSES AND TRAILERS

PLANTS AT: Detroit and Jackson, Mich. • Oshkosh, Wis. • Utica, N.Y. • Ashtabula, Kenton and Newark, Ohio • New Castle, Pa.

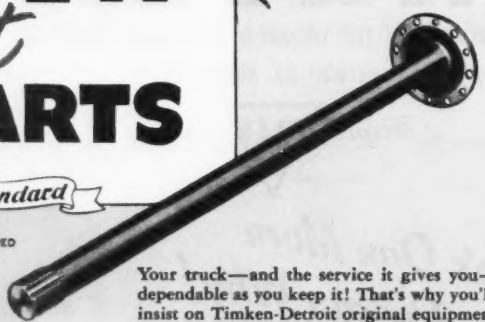
BEST for new trucks!

BEST to keep them new!

Genuine TIMKEN Detroit AXLE PARTS

The Accepted D A Standard
CO
TRADE MARK REGISTERED

Look for this sign



MAIL THIS COUPON FOR THE FULL FACTS ON TIMKEN-DETROIT AXLE SHAFTS

The Timken-Detroit Axle Company
100 North Clark Street, Detroit 32, Michigan

Gentlemen: Please send me complete information on Timken-Detroit Axle Shafts.

NAME_____

ADDRESS_____

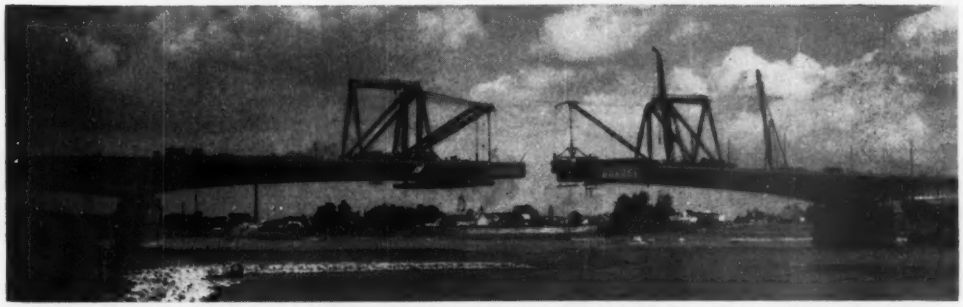
CITY_____ STATE_____

I operate_____ (Number of trucks)

Your truck—and the service it gives you—is only as dependable as you keep it! That's why you'll be wise to insist on Timken-Detroit original equipment whenever your Timken-Detroit Axles need parts!

Only genuine Timken-Detroit Axle Replacement Parts can—and do—give you the precision engineering and the same high quality you bought originally. For instance, Timken-Detroit's famous "torsion-flow" axle shafts are specifically designed to withstand the stresses of heavy-load service. Such *exclusive* manufacturing processes as "torsion-flow" forging for uniform grain structure, special heat treating for high Brinell hardness at the surface graduated to a softer center core, and shot peening under the flange, body and splines to compress the skin and increase torque resistance, make this the toughest axle shaft ever built!

The next time your Timken-Detroit-equipped trucks need axle replacement parts, look for the sign that reads "Genuine Timken-Detroit Axle Parts!"



DUSSELDORF-NEUSS SPAN over Rhine was erected in two cantilever arms joined by a suspended section at the center.

New plate girder span record, 676 ft, is set by Germans on Rhine crossing

Since the war, German engineers, using a welded hollow box design, have set three successive world records for span lengths of plate girder bridges. All occur in Rhine River crossings built to replace structures destroyed in the war.

The Cologne-Mulheim bridge was first with a main span length of 606 ft (ENR Feb. 2, 1950, p. 47), followed by the bridge at Bonn with a 615 ft span. Now comes the third, joining Dusseldorf and Neuss, which contains a main span of the unprecedented length of 676 ft. Along with this length goes the unusual width of 98 ft, twice that of the previous two bridges.

The Dusseldorf-Neuss bridge has a total length of over 2,500 ft in 11 spans, of which the center portion consists of the 676-ft span flanked by 340-ft spans. By erecting this central unit as a cantilever it was possible to reduce the depth of the girders at midspan to about 11 ft, giving a slenderness ratio of 1:62.6. At the supports the depth increases to 25½ ft.

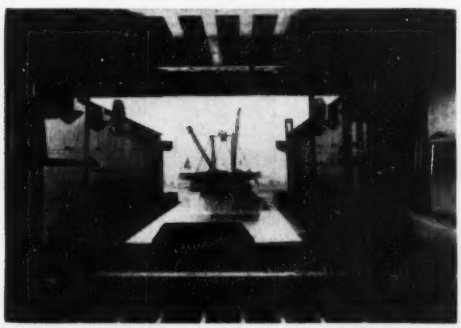
The girder system consists of a pair of continuous boxes 25 ft wide, spaced 20 ft apart by 11 diaphragms in the three span layout. Cantilevered sidewalk brackets, 14 ft wide, complete the deck width. The roadways are carried directly on the box girders while two street car tracks are installed over the central open space, resting on a series of floorbeams and stringers. The top steel plates of the boxes are corrugated to provide effective bond for an asphalt wearing surface.

The plates of the boxes—girders as well as top and bottom plates—are stiffened with structural sections. Since the girder webs are very thin—⅝ in. for the 25 ft web depth—enough stiffening is used so that, for buckling, the girders can be figured as trusses with the stiffeners as the compression members and the web as the tension diagonals.

The bridge was fabricated in large erection units, the maximum size being 75x25 ft and weighing 57 tons. They were transported to the site on special 48-wheel trailers, run out on the bridge on an industrial railway and assembled into boxes by the erection travelers. The one exception was the center suspended section of each girder which was fabricated as a complete box, floated to the site and lifted into place.

All shop fabrication was done by welding so that the only rivets in the bridge are in the field splices. A total of about 125 miles of welding was required. A significant point about the bridge is that a special new high strength (75,000 psi) weldable alloy steel was used throughout. Its composition is a proprietary secret, but

(Continued on next page)



INSIDE, the box girders are stiffened top, bottom and sides to assure a member as a unit with high torsional resistance.

ON TOP, the box girders support a 98 ft wide deck. Roadways are on the boxes and rail tracks on framing between.

Consult **BLAW-KNOX FIRST**

***before* your plans are drawn on engineered construction jobs**

• EVEN BEFORE the plans are drawn . . . *before* the blueprints are made on your next engineered construction job, call in Blaw-Knox engineers for the expert consultation service that assures lower concrete placing costs.

Blaw-Knox engineers are backed by over 40 years experience in solving tough or unusual concreting problems. They are trained to get to the core of your problem and find the simplest, least costly method of solving it. They can suggest operating procedures to speed the job, or cut down the necessary number of operations. They will recommend the most efficient forms for the job and help you estimate your bids.

Whatever your concreting problems—dams, tunnels, bridges, even small sewers—take advantage of the Blaw-Knox engineering service *before* you start to plan. Write, wire or phone for information.

Preliminary planning plus BLAW-KNOX STEEL FORMS saved one costly concreting operation

• This big tunnel job is a typical example of how early consultation pays off. Blaw-Knox engineers showed the contractor how to combine the collapsible Steel Forms to permit concreting of side walls and roof arch in one operation. One step in construction was saved, and the necessity of using an expensive copper water stop was eliminated.

STEEL FORMS

WRITE FOR BULLETIN 2035

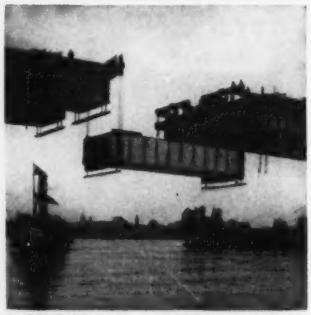
Get complete details about Blaw-Knox Steel Forms and the consultation service that is available to any contractor without obligation.

CONSULTATION SERVICE BY

BLAW-KNOX

BLAW-KNOX DIVISION of Blaw-Knox Company
Farmers Bank Building, Pittsburgh 22, Pa.
NEW YORK • CHICAGO • PHILADELPHIA • BIRMINGHAM • WASHINGTON • SAN FRANCISCO

International . . .



2. LIFTING the central suspended section into place in the 676 ft span.

it is claimed to assure unusual resistance to dynamic stresses in the welded joints. The design and erection supervision on the Duesseldorf-Neuss Bridge was carired out by Hein-Lehmann & Co. of Dusseldorf.

Rome inaugurates one mile subway

Celebrating its 2705th birthday on April 21, the city of Rome opened to traffic its one-mile subway. In the near future it will be connected with a 3-mile open air section extending to the western suburbs of the Eternal City, where a new fairground and public park have been built. These are expected to be the center of a model housing zone.

(*Continued on page 54*)

BANK BUILDING—The Banco do Brazil, the country's central banking institution, has chosen this design by Architect Ary Garcia Roza for its new headquarters in Rio de Janeiro. The building will occupy an entire city block and enclose about 220,000 sq ft of floor space. It will take several years to complete the structure. The cost will be about $12½ million.

Cummins® Diesels
do so many jobs-so much better

Shovels, cranes, industrial locomotives

Drilling rigs, centrifugal pumps, generator sets

Buses and on-highway trucks

...because they're custom-built to fit the job

Earthmovers, logging yarders and loaders

Off-highway trucks, crawler tractors

Work boats, pleasure craft

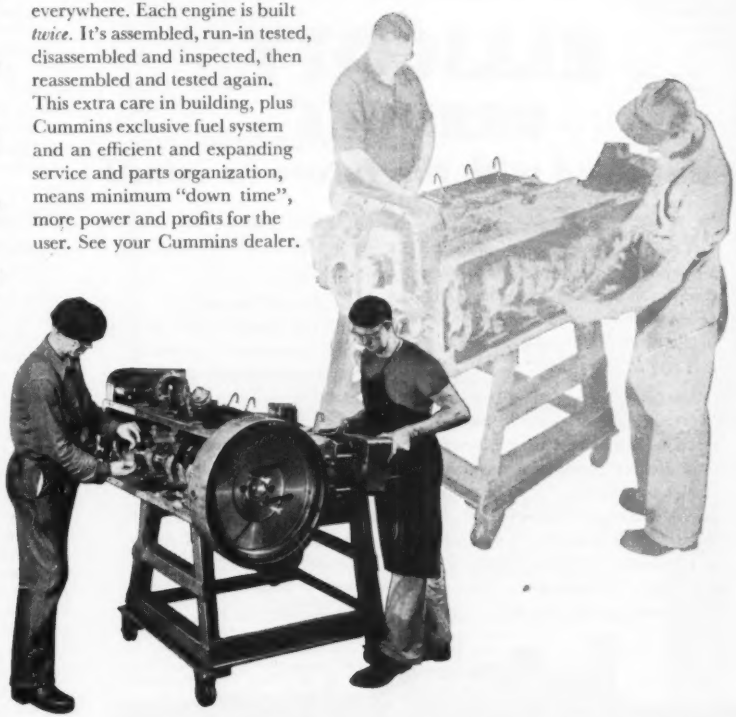
Lightweight, high-speed Diesels (50-550 hp) for these and many other uses

---

...because they're

BUILT NOT ONCE BUT TWICE

Rugged, lightweight, high-speed Cummins Diesels are at work everywhere. Each engine is built *twice*. It's assembled, run-in tested, disassembled and inspected, then reassembled and tested again. This extra care in building, plus Cummins exclusive fuel system and an efficient and expanding service and parts organization, means minimum "down time", more power and profits for the user. See your Cummins dealer.



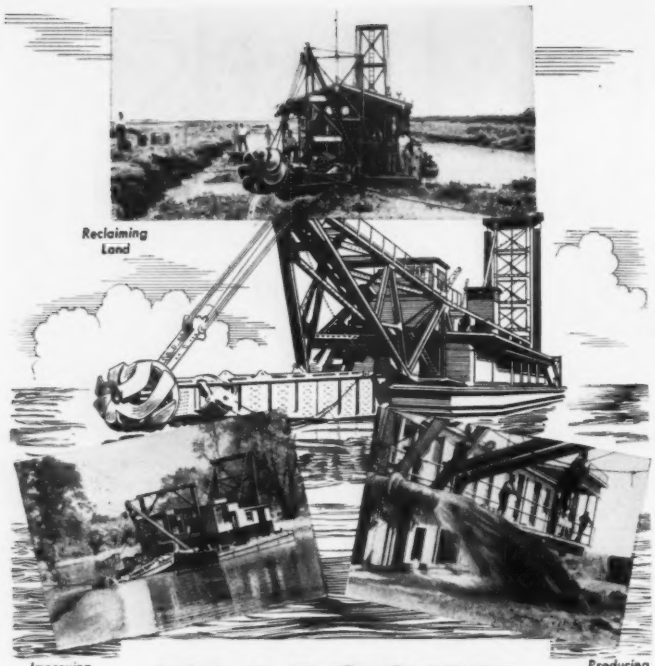
CUMMINS Originally DIESEL

TRADEMARK REG. U. S. PAT. OFF.

Diesel power by CUMMINS

CUMMINS ENGINE COMPANY, INC., COLUMBUS, INDIANA

Export: Cummins Diesel Export Corporation • Columbus, Indiana, U.S.A. • Cable: Cumdiex



ELLICOTT DREDGES

—designed with the future in mind!

MOST dredges are purchased for a particular project. However, the extent to which the dredge you buy may be readily and economically adapted for other jobs in the future determines the soundness of your investment.

Sometimes a particular dredging job requires an extremely specialized machine. But in most cases, Ellicott-built dredges can be made versatile enough to have a useful life in many varied operations. Filling land . . . maintaining and improving channels and harbors . . . digging canals . . . desilting . . . building dams . . . producing sand, gravel and shell . . . all can usually be done by the same Ellicott Dredge, with but relatively few alterations.

Because Ellicott Dredges are designed with the future in mind, your investment is protected. You can be sure that the dredge Ellicott engineers design for you will serve you for many productive and profitable years. What's more, Ellicott's years of experience is further assurance that your dredge will *outperform all others on every basis!* For more information, write for Catalog 825. Address: ELLICOTT MACHINE CORPORATION, 1603 Bush Street, Baltimore 30, Md.

ELLICOTT®

ELLICOTT DREDGES

International . . .

Puerto Rican legislature O'Ks $8 million works

The legislative assembly of Puerto Rico has approved a bill appropriating the sum of $8,800,000 to carry out a public improvement program, with insular and federal funds, during fiscal year 1952-53.

The bill assigns $6,000,000 to the Insular Department of the Interior for the construction and improvement of primary and secondary roads and urban highways; $1,700,000 for construction and improvement of municipal roads, and $1,100,000 for reconstruction of existing highways.

The bill provides that of the first appropriation of $6,000,000 the Commissioner of the Interior is expressly authorized to match Insular funds to those federal funds allocated by the Federal Works Agency and the Public Roads Administration, in accordance with an act of May 15, 1948, approved by the Insular Legislature. The Commissioner of the Interior is also authorized to match Insular funds with federal funds for construction of municipal roads and reconstruction of highways from the necessary funds appropriated by that act. The bill provides that out of the first appropriation, the sum of $100,000 may be utilized for the purchase of rights-of-way for those roads and streets included in the official map approved by the Puerto Rico Planning Board and the governor of Puerto Rico.

Philippine road program is nearly completed

The $40-million program financed under the United States rehabilitation act to restore war damaged and destroyed roads, streets and bridges in the Philippine Islands is nearly completed, according to a report of the Philippine Better Roads Association.

Built with the rehabilitation funds either in whole or in part are approximately 254 major and 239 minor bridges and 309 miles of improved highways and streets. Of the $40,040,000 allocated by the U. S. Congress in 1946 for highways, approximately $36,600,000 has been spent to date. The balance must be expended by June 30, 1952, deadline for completion of the rehabilitation program.

The program is being executed by the Philippine Bureau of Public Works in cooperation with the U. S. Bureau of Public Roads. Most of the construction has been performed by contract.

In the City of Manila all the major

bridges have been rebuilt and the heavily traveled streets have been resurfaced or reconstructed. Most of the streets in the business district of Cebu have been repaved. Although most of the reconstruction is on Luzon, substantial work has also been done in Cebu, Mindanao, Negros and Panay, and a few projects on Leyte and Bohol.

Saskatchewan roads

The Province of Saskatchewan, Canada, has announced a 1952 highway program which includes 229 mi of black-top surfacing, 778 mi of grading and 1,000 mi of graveling.

When this year's construction plans are completed, there will be 200 mi of black-top on Trans-Canada Highway No 1, extending from west of Swift Current to Oakshela, 350 mi of black top from North Portal at the North Dakota border to northwest of Saskatoon, and 222 mi on the Regina North Battleford Road.

Highway Minister J. T. Douglas says the various scattered road projects are rapidly drawing together in a network that will be given connections to all the larger centers of population as well as providing main arteries for east-west and north-south traffic.

From 1946 to 1951 the provincial government had spent $45½ million on highways, and reduced the highway debt by more than $14 million. In that period 750 mi of roads have been hard-surfaced, 3,554 mi graded, and 8,562 mi graveled.

The Trans-Canada Highway under the program would be reduced in length across Saskatchewan by 55 mi, bringing the total length of the highway in the province to 414 mi.

Sweden will have 1.8 million kwh plant

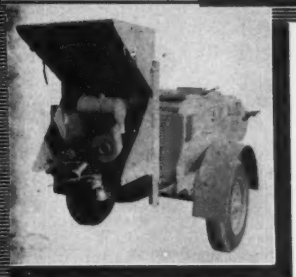
Installation of the third 96,000 kw Francis turbine this spring at Sweden's new Harspranget power project will put it well on its way to first place in size in Europe. When the fourth and last unit is installed the annual output will be 1.8 billion kwh. compared to the present record holder, France's Genissiat dam on the Rhone, with an output of 1.65 billion. Some time later France will forge ahead again with its Donzeremondragon project, now under construction to produce 2 billion kwh annually. Harspranget, located 30 miles inside the Arctic Circle, includes a rockfill dam 148 ft high and 2,560 ft long, and a power station 200 ft underground that has plan dimensions of 59x328 ft. the 96,000 kw turbines are second in size only to Grand Coulee's 105,000 kw units.

Patch ROADS THE LOW COST WAY

Temperature Easily Controlled

Easy to Transport

Saves Money on Patchwork



STANDARD STEEL TAR-KETTLES

PATCH AND MOVE ON IN MINUTES AND SECONDS

With this Standard Steel Model "S" Kettle, "cold spots" or "burnt materials" are eliminated. You get uniformity of heat throughout the entire mass of material. Steady temperature at the correct level is maintained all day long. Easily transported — equipped with special safety features — it's a fast worker. With a motor spray attachment, it is even more efficient for road maintenance. Standard Steel also offers a complete line of crack filling pots, shoulder rollers and other road maintenance equipment.

WRITE FOR CATALOG AND PRICES

OTHER PRODUCTS OF STANDARD STEEL

Asphalt Pressure Distributors, Maintenance Distributors, Patch Rollers, Supply Tanks, Tool Heaters, Asphalt Tools, Street Flushers, Construction Brooms.

Built to the Highest Standard TK-1

Standard Steel Works NORTH KANSAS CITY, MO.

Safe and economical solution to foundation problems . . .

FRANKI DISPLACEMENT CAISSONS

● The driving and concreting procedure followed in the installation of Franki Displacement Caissons results in very high compression of surrounding soil. This high soil compression added to the intrinsic strength of the Franki Displacement Caisson provides an unequalled bearing capacity.

It will pay you to investigate the advantages of the Franki Displacement Caisson. It has been used successfully in 36 countries under a wide variety of soil conditions. Typically, single caisson loads are 100 tons.

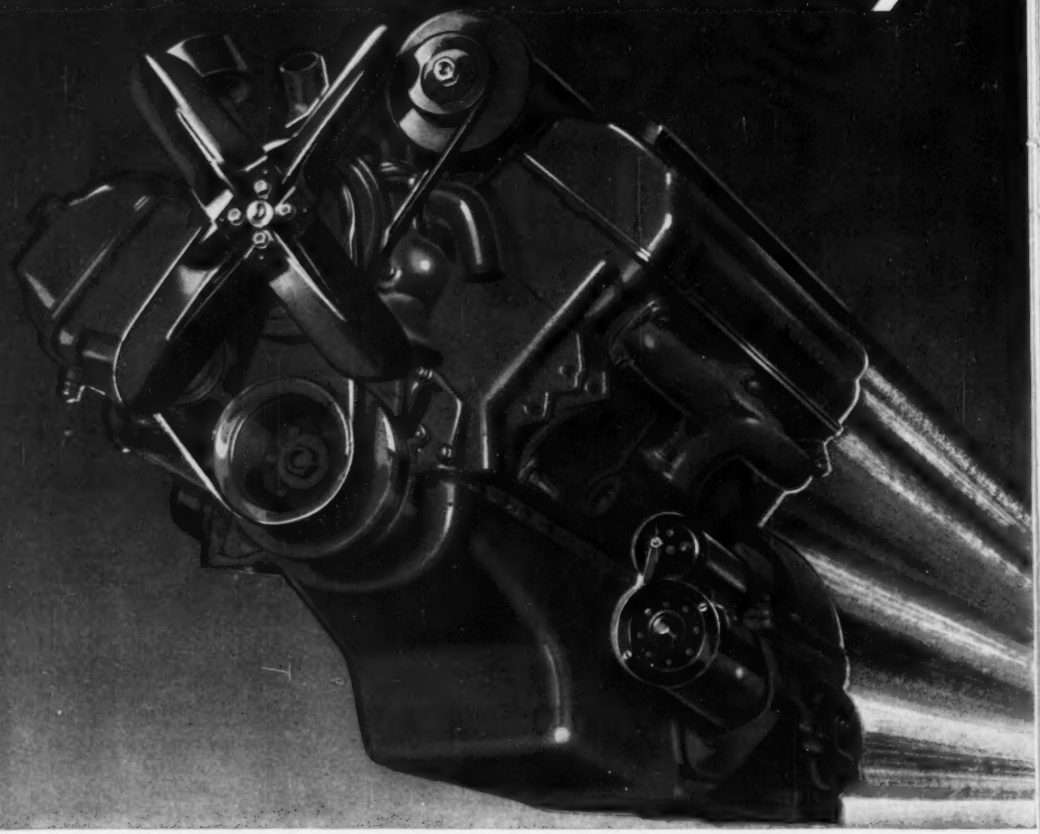
Write for information about the construction method, advantages, tests and typical installations of the Franki Displacement Caisson.

Excavated Franki Displacement Caisson. Enlarged base and 21" diameter shaft formed by ramming concrete into soil. Soil is displaced and compacted—not excavated.

FRANKI FOUNDATION COMPANY

436 Seventh Avenue Pittsburgh 19, Pa.

NOW!... a Revolutionary



Chrysler Industrial Engineers Again Shatter Precedent! Develop Advanced Design With Larger Bore and Ingenious New Overhead Valve Arrangement! Make Long-desired Hemispherical Combustion Chamber Practical For Mass Production Methods

To the long list of Chrysler "Engineering Firsts" now is added another!

For many years, engineers have known that the Hemispherical Combustion Chamber produces the highest volumetric and thermal efficiency, exceptionally good combustion characteristics, and had excellent adaptability to high compression ratios. But all previous attempts to incorporate this design into a mass-produced engine had been unsuccessful. After five years of intensive research, Chrysler Engineers attained this goal.

With only 2.3 per cent more displacement, this mighty new Chrysler Industrial V-8 delivers *33 per cent greater maximum horsepower and a 16 per cent higher maximum torque.* Its performance is incredible. Its fuel economy is outstanding. Its durability unexcelled. In operation, it is amazingly smooth and quiet. Over-all efficiency is tremendously increased.

NEW CHRYSLER INDUSTRIAL

Yet, it has greater compactness and less weight.

Among its unique design features are a water jacketed throttle body that prevents "icing," integral automatic choke and double breaker ignition distributor.

This sensational new Industrial Engine will give you a whole new conception of industrial power and Industrial Engine performance.

Let us show you what it will do for *you*. See your Chrysler Industrial Engine Dealer, or if your job involves special engineering, write us direct. **Marine and Industrial Engine Division, Chrysler Corporation, 12200 E. Jefferson Avenue, Detroit 31, Michigan.**

CHRYSLER
Industrial Engines

HORSEPOWER WITH A PEDIGREE

DESIGNER: WILLIAM T. SNAITH OF RAYMOND LOEWY ASSOCIATES
ARCHITECTS: PEREIRA & LUCKMAN AND CHARLES O. MATCHAN
GENERAL CONTRACTOR: THE WILLIAM SIMPSON CONSTRUCTION COMPANY

CECO *first choice*

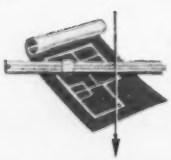
in another great building project

The J. W. Robinson Company's new Beverly Hills Department Store — built with Ceco Reinforcing Steel and Windows for truly modern design.

In creating the J. W. Robinson Company's new Beverly Hills department store, the architects and contractors recognized the need for expert fabricating service on reinforcing steel and precision in steel windows. Here Ceco's 40 years of on-the-job experience offered unmatched facilities and Ceco's windows met all requirements because they are manufactured on an engineering principle backed by research and constant in-the-field testing.

Ceco detailed the drawings for the Reinforcing Bars, Welded Wire Fabric, Architectural Projected Windows and Security Windows and erected the windows.

Here's an example of how Ceco's broad service benefits engineer, architect, contractor and owner—for they know "In construction products CECO ENGINEERING makes the big difference."



More and more engineers count more and more on Ceco for the best in building products.

CECO STEEL PRODUCTS CORPORATION
General Offices: 5601 W. 26th St., Chicago 50, Illinois
Offices, warehouses and fabricating plants in principal cities

CECO STEEL ®

In construction products **CECO ENGINEERING** *makes the big difference*

International . . .

U.S. dam experts help Australians

Engineers, scientists and men from many lands are taming the mountain torrents of the rugged Australian Alps in the southeast of the continent in an immense hydro-electric and irrigation undertaking known as the Snowy Mountain Hydro-Electric Scheme. Generating plant of a total capacity of approximately 2,750,000 kw will be installed and an additional 2,333,000 ac ft a year of water will be available for irrigation in the valleys of the Murrumbidgee and Murray rivers in New South Wales and Victoria.

To achieve this, seven major dams will be constructed, 86 miles of large diameter tunnel, nearly 500 miles of race lines, 16 power stations, scores of miles of roads in most mountainous country and a number of subsidiary works.

The project is administered by the Snowy Mountains Hydro-Electric Authority which was established in 1949. Activities began immediately.

Early work was confined mainly to road building, to investigation by surveyors and diamond drillers and to other exploratory activities to insure that the dams and tunnels would be built in the best area. Already, work is so far advanced at one of the works, the Guthega project on the Upper Snowy River, that it appears certain

(*Continued on next page*)

EXPERTS ON THE SITE—John L. Savage, center, U. S. Engineer and Commissioner W. Hudson, right, of the Snowy Mountains Hydro-Electric Authority, and W. A. Dexheimer, left, of the U. S. Bureau of Reclamation on the site examine plans for the Tumut Pond Dam.

SEEING

To prove it's best, make the Clearprint test

SPECIFY: No. 1000H CLEARPRINT—The Universally Accepted Tracing Paper.
No. 1025 PAPERCLOTH—The Paper with Cloth Durability.
Clearprint is available in widths from 24" to 54".
Ask for samples from your dealer, or write:

CLEARPRINT PAPER CO.
1482 SIXTY-SEVENTH STREET · EMERYVILLE, CALIFORNIA

is BELIEVING!

See for yourself why leading engineers and architects from Coast-to-Coast are demanding Clearprint Technical Papers. Ask for a sample, then make this convincing test:

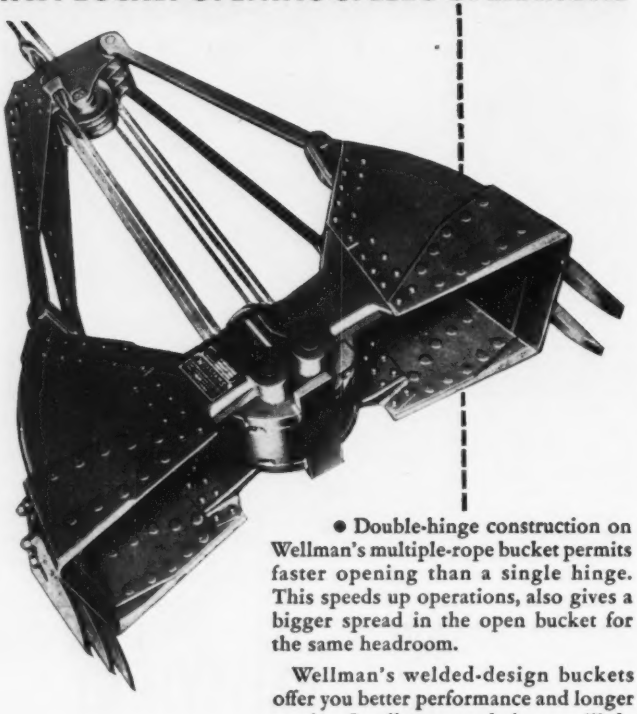
1. **INVITES THE PENCIL**—Try Clearprint's perfect working surface with a 2H pencil, then with a ruling pen. Lines are sharp and clean—no feathery edges.
2. **NO GHOSTING**—Erase some of the lines. Redraw and erase several of them time and again. Crease the paper, too. Then hold it to the light, or make cleanest possible reproductions.
3. **NEVER CHANGES**—Sheets in use for 19 years prove Clearprint's amazing stability. Its strength, transparency and printing qualities remain unchanged after extended exposure to age, atmosphere, heat and light.

If you are not using Clearprint now, please make this comparative test on the paper you are using.

CLEARPRINT
TECHNICAL PAPER
THERE IS NO SUBSTITUTE—Demand Watermarked Clearprint

WELLMAN *Williams Type*

FAST BUCKET OPENING SPEEDS OPERATIONS



• Double-hinge construction on Wellman's multiple-rope bucket permits faster opening than a single hinge. This speeds up operations, also gives a bigger spread in the open bucket for the same headroom.

Wellman's welded-design buckets offer you better performance and longer service. In all types and sizes you'll do better with Wellman!

Want Facts?

Write for free descriptive bulletins.

CLAMSHELL • DRAGLINE • CUSTOM-BUILT BUCKETS • STONE AND WOOD GRABS

THE WELLMAN ENGINEERING COMPANY
7000 Central Avenue
Cleveland 4, Ohio

"Gunite" ..... the sand-cement product of the "CEMENT GUN," for Concrete and Masonry Repairs, Pre-Stressed Tanks, Steel Encasement and for lining Reservoirs, Sewers and Tunnels.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.
MANUFACTURERS OF THE 'CEMENT GUN'

International . . .

that this will begin to produce power by June, 1954.

Early this year the stage had been reached when it was decided to call on the world's best brains in dam construction to check current and projected work and for advice on various engineering features.

The authority called in for consultation John L. Savage, of Denver, Colo., a well-known figure in big dam construction. At the same time as Dr. Savage's visit, a mission of United States government engineers, led by W. A. Dexheimer, assistant chief construction engineer of the U. S. Bureau of Reclamation, was brought to the area by mutual arrangement between the Australian and U. S. governments. The commissioner of the Snowy Mountains Hydro-Electric Authority, W. Hudson, said that it was the policy of the authority to obtain the best advice available.

The mission will remain in Australia for several weeks, and will undertake the design of the upper Tumut works and advise with the preparation of other designs.

International briefs

• **Brazilian power project**—Study of a second Brazilian hydro-electric project for which U. S. funds are sought has been undertaken by the Joint Brazilian-U. S. Commission for Economic Development. The station is proposed for Itutinga in central Minas Gerais state, and would have 24,000-kw initial capacity, later to be expanded to 36,000 kw. The estimated cost is $5.3 million for equipment and technical services. Plans are also being prepared for a 100,000-kw plant on the upper Rio Doce, to cost in the neighborhood of $10 million.

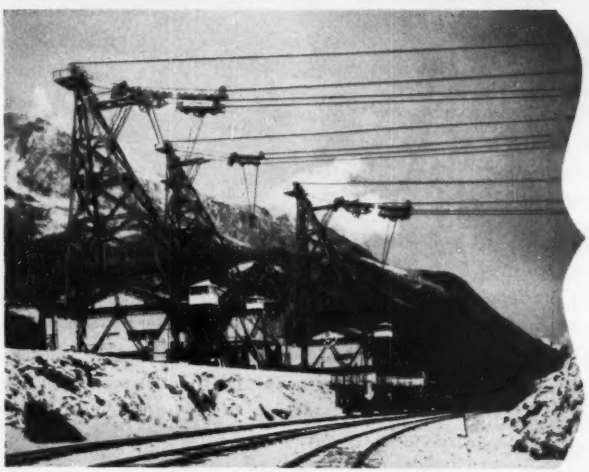
• **Paper mill for Pakistan**—The Kuljian Corp., engineers and constructors of Philadelphia, have been engaged to design, engineer and purchase equipment for a paper mill to be erected in Pakistan. This multi-million dollar project is part of a major increase in the country's paper production.

• **U. S. tractors for Malayan roads**—For the United Kingdom's $7 million road construction program for Malaya $378,000 worth of American-made tractors have been shipped to that country. Their first assignment will be gouging many miles of strategic roads out of the jungles to carry tanks and military vehicles through the forests and over mountains to help the British and Malayan forces to maintain order in the country.

3 LIDGERWOOD high speed electric Cableways . . .

HELP BUILD EUROPE'S TALLEST DAM

Rising 592 feet above the ground, the Tignes Dam, located in the French Alps, presents many unusual construction problems. Freezing temperatures cut the working season to less than six months. To handle the vital job of placing concrete, engineers for Electricite de France selected



PROVED, RELIABLE AND EFFICIENT EQUIPMENT

designed and built by Lidgerwood Industries.

- **Two 25-ton Cableways for handling 8 cubic yard buckets.**
- **One 10-ton Service Cableway.**

All three are radial type with traveling head towers and a common pivotal tower. Spans average 1950 feet.

Designers and builders of Special Large Hoisting Machinery of every type; Electro-Hydraulic Marine Auxiliary Machinery; "Denny-Brown" Ship Stabilizers and Construction Equipment; Cableways up to 150 ton capacity.

LIDGERWOOD INDUSTRIES, INC.

7 DEY STREET, NEW YORK 7, N. Y.

Before you buy any Mixer check KWIK-MIX

16-S DANDIE® *advantages*

MOTO-BUG® . . . labor-saving power wheelbarrow takes all heavy manual work out of hauling, backing up, spotting, has full power forward and reverse . . . no push, no pull necessary. 10 cu. ft. hopper converts to 1500-lb. flatbed, fork lift, scraper blade.

✓ **ADJUSTABLE, DOUBLE-CONTACT SHAKER** on skip, with contact at each end of skip frame, has vertical shaking action. No twisting strain.

✓ **AUTOMATIC WATER SYSTEM,** accurate to fraction of a pint, combined with exclusive blade-and-bucket re-mixing action, produce consistent quality concrete every batch.

✓ **8-SECOND DISCHARGE** . . . tilted Flow-Line Discharge Chute, available only with Kwik-Mix, reaches deep into drum, discharges full batch in 2½ revolutions, saves seconds every batch.

✓ **INTERCHANGEABLE** side or end discharge . . . mixer can be changed from side to end discharge in less than an hour, because axles are easily interchangeable on square frame.

✓ **3-POINT SUSPENSION MOUNTING** on heavy coil springs (2 at each corner of rear, and 1 double-coil arrangement centered at front) absorb high-speed operating and travel shocks.

✓ **HEAVY CAST-STEEL DRUM HEADS** with machined roller paths . . . independent engine clutch . . . multiple V-belt drive . . . Tower Loader for overhead discharge . . . special 90" skip, are other 16-S features worth checking.

Before you buy any mixer, get all the facts from your Kwik-Mix distributor on this big-production 16-S Dandie. Other sizes: 11-S, 6-S, 3½-S . . . also, bituminous, tilting and non-tilt plaster-mortar mixers, and Moto-Bug.

To: KWIK-MIX Co., Port Washington, Wis. Send new catalog on 16-S Dandie, also:

NAME _____ ☐ 11-S ☐ 6-S ☐ 3½-S

COMPANY _____ ☐ 10 ☐ 14 ft. bituminous

STREET _____ ☐ 6 ☐ 10 ft. plaster-mortar

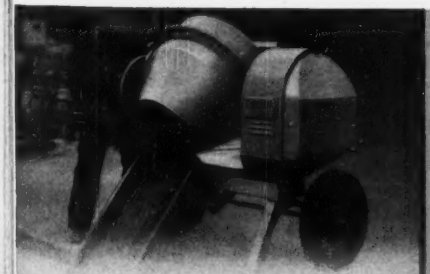
CITY, STATE _____ ☐ Tower Loader ☐ Moto-Bug

CKM240REV.

KWIK-MIX

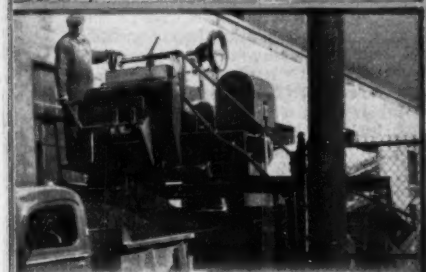
COMPANY • Port Washington, Wis.

(Koehring Subsidiary)

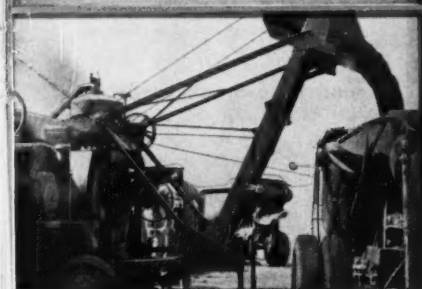


3½-S DANDIE is sturdy, light, portable for on-the-spot mixing . . . Kwik-Mix line also includes a 3½ cu. ft. non-tilting model.

2-WHEEL 11-S end-discharge, non-tilter, is also available on 4 wheels, side or end discharge for thorough Dandie-mixed concrete.



KWIK-MIX BITUMINOUS mixers . . . 10 and 14 cu. ft., are readily adaptable as stationary plants or as highly mobile 4-wheel units.

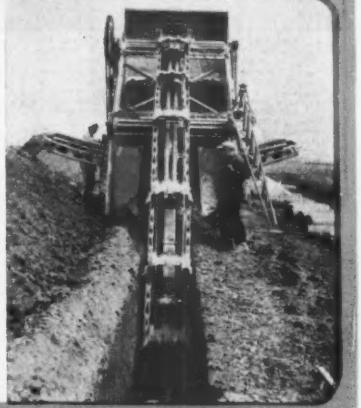


FOR DISCHARGE AT 9'-2" HEIGHT . . . Kwik-Mix Tower Loader fits 11-S and 16-S mixers . . . is also available for bituminous mixers. Loads into trucks, forms, overhead hoppers, or handles stockpiling. Collapses for travel.

17-FT.-DEEP Parsons 310 Trenchliner®

With 45 digging feeds, this big-capacity 310 Trenchliner produces from 8" to 15½' of clean, smooth-walled trench per minute . . . digs 1½ to 4½' wide at 17' depth with single boom, and up to 6' wide at 11' depth with dual booms. 310 has full reverse of all operations for undercutting or making vertical set-ins . . . is equipped with easy-in, easy-out "Tap-In" teeth. Parsons line also includes 4 Trenchliners in smaller sizes.

PARSONS *(Koehring Subsidiary)*
Newton, Iowa



EASY-CHARGING Johnson Lo-Bin Batcher®

Lo-Bin Trolley Batcher holds 8, 20 or 30 tons . . . is only 7½' to 9½' high for charging with front-end tractor loader. Lo-Bin has 2, 3 or 4 compartments, up to 4 weigh beams, 22 or 44 cu. ft. weigh hopper . . . or can be arranged for 2 or 3 aggregates and 1 bulk cement compartment. Efficiently serves 28-S, 16-S, 11-S, 6-S mixers. Lo-Bin is quickly dismantled, easily moved by dump truck. Optional: wheels, tires, tow-bar.

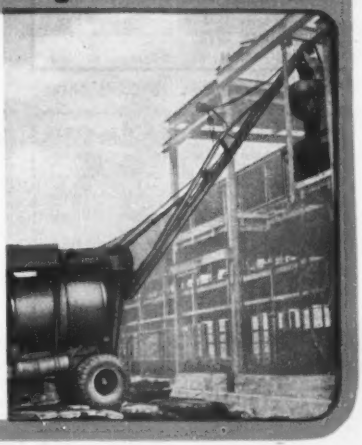
C. S. JOHNSON *(Koehring Subsidiary)*
Champaign, Illinois

HIGH-DISCHARGE Koehring 16-E *twinbatch*®

Here's a portable mix plant with controlled elevated discharge for all types of concrete construction. Boom on Koehring 16-E elevates 60°, swings in 160° arc. Bucket discharges controlled batch up to 21' (higher with special boom). 16-E produces up to 50 cu. yds. per hour, exceeding larger 27-E single-drum paver. Drives 6 m.p.h. on rubber tires job to job. Also check big Koehring 34-E *twinbatch* for major paving.

KOEHRING COMPANY
Milwaukee 16, Wis.

X67



ENGINEERS AND IVORY TOWERS

Just Published!

1. Engineers throughout the world will welcome this selection of Professor Hardy Cross's writings. Culled from an extensive collection, the book reflects the author's opinion on the relationship of engineer, and engineering to science and the humanities. It touches on a range of subjects including education, graduate study, the application of standardization, and the responsibilities and obligations of engineers. Here is a frank examination of engineering, its progress, its contributions and limitations. **By Hardy Cross, edited and arranged by Robert C. Goodpasture. 145 pages, $3.00**

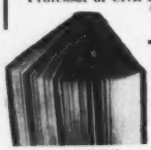
ENGINEERING IN PUBLIC HEALTH

Just Published!

2. Explains the engineer's problems and methods in providing public health protection. The organization and administration of Federal, state, and local health departments—the methods of combating diseases—and the use of disinfectants, insecticides, etc.—are covered. Gives information on equipment and practices for prevention of air pollution, sewage treatment, industrial waste disposal, rural sanitation, etc. **By Harold E. Babbitt, Prof. of Sanitary Engin., Univ. of Ill. 582 pages, 53 illus., 70 tables, $8.00**

FOUNDATIONS OF STRUCTURES

3. Here are sound instructions on every phase of foundation engineering from how to gather and interpret soil data, and how to plan the support of a structure, to how to handle the construction of that foundation. Describes all types of foundations, and gives examples of some actual substructures. **By Clarence W. Dunham, Professor of Civil Engin., Yale U. 669 pages, 464 illus., $8.00**



MATERIALS HANDBOOK

4. Seventh Edition presents the most pertinent and important facts relating to more than 8800 materials to enable executives, purchasing agents and engineers to make comparison, avoid checking many sources, and quickly get a working knowledge of the materials best suited for a particular purpose. Gives detailed information on chief characteristics, comparative data, sources, substitutes, adulterants, and uses for each material. Includes a section on important economic geography. **By George S. Brady. 7th Edition, 870 pages, 360 illus., $8.50**

SEE THESE BOOKS 10 DAYS FREE

McGraw-Hill Book Co., 330 W. 42 St., NYC 36

Send me book(s) checked below for 10 days' examination on approval. In 10 days I will remit for book(s) I keep, plus few cents for delivery, and return unwanted book(s) postpaid. (We pay for delivery if you remit with this coupon; same return privilege.)

- ☐ 1. Cross & Goodpasture—**ENGIN'RS & IVORY TOWERS $3.00**
- ☐ 2. Babbitt—**ENGIN. IN PUBLIC HEALTH $8.00**
- ☐ 3. Dunham — **FOUNDATIONS OF STRUCTURES $8.00**
- ☐ 4. Brady—**MATERIALS HANDBOOK 8.50**

(print)
Name .....
Address .....
City .....Zone.....State.....
Company .....
Position NR-5-1-52

This offer applies to U. S. only.

MEETINGS

New horizons for engineering are seen by Vannevar Bush

Versatility, flexibility, and the willingness to pioneer were suggested as keynotes in the education of engineers by Vannevar Bush, president of the Carnegie Institute of Washington, addressing 500 engineers at a New York City celebration of the Centennial of Engineering, April 16.

The meeting was arranged by the Metropolitan Section of the American Society of Civil Engineers, with the cooperation of local groups of electrical, mechanical, chemical, mining and metallurgical engineers.

Doctor Bush believes that far-reaching changes in our ways of making a living are imminent and that engineers should be ready to adapt their skills and ingenuities to the new opportunities when they occur. He referred to new methods of reclaiming land, giving as an illustration what engineers are doing in Honduras where the United Fruit Co. has been diverting a river to build up fertile soil. Through such diversion several feet of silt are laid down in a swamp. The river is diverted again, drainage canals are put in and the result is fertile and arable soil in place of thousands of acres of formerly useless land.

"We are, I believe," said Dr. Bush, "only at the beginning of what can be done with irrigation. When our source of stored fuels begins to decline we may turn to atomic energy for power, but it is far more likely that we will utilize energy from the sun. Solar power for irrigation may be feasible even before our oil reserves begin to peter out.

"Certainly we are in changing times, and in order to maintain engineering in its proper sphere, we need to have a profession which can itself change and which can adapt. This is the challenge before engineers today.

"Unfortunately, in our engineering education, and in industry for that matter, we have often in the past lost sight of the importance of breadth and adaptability in our engineers, in attempting to become general, we often have become merely superficial."

But a hopeful sign, the speaker said, is the present unprecedented rate of university and industrial research, and he envisages an interaction of scientific effort with all phases of business, development, production, sales, and finance. To some extent, the engineer takes over where the applied-scientist leaves off, the two groups are complementary rather than competitive.

H. S. SWEARINGEN, CHAIRMAN, Southern California chapter of the American Public Works Association, announces to his fellow members the arrangements for the national convention of APWA at Los Angeles Aug. 24-27 Mr. Swearingen is with the Los Angeles Department of Public Works.

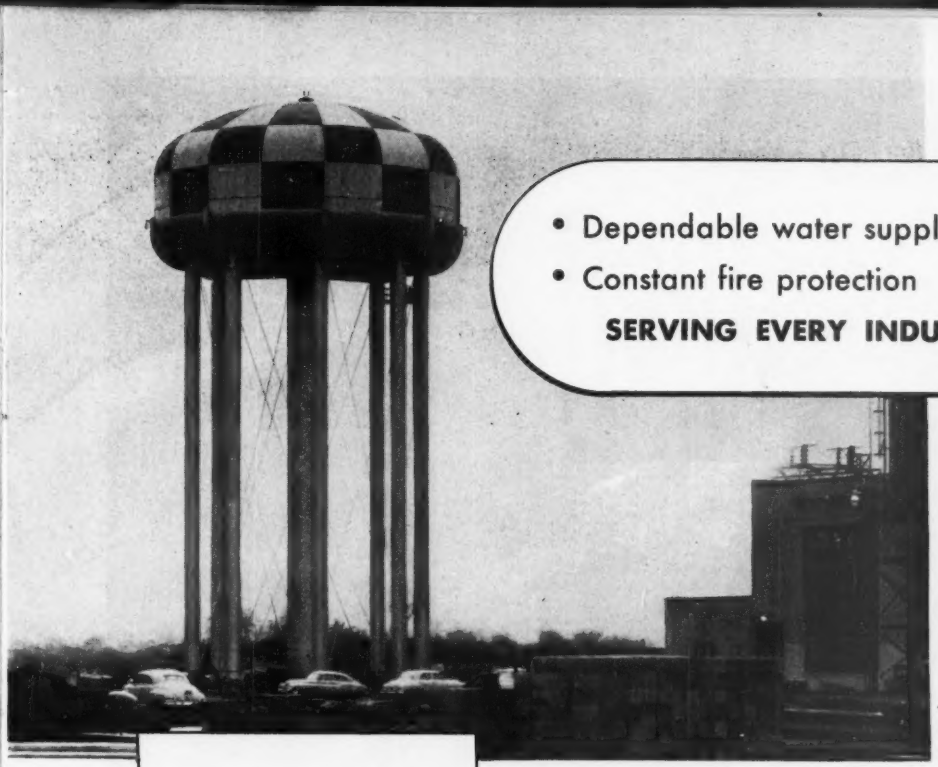
Pan-American engineers to meet at New Orleans

The Pan American Union of Engineering Societies, organized to draw together and promote the activities of engineering societies of North and South America on an international scale, will hold its third congress at Tulane University in New Orleans, La., Aug. 25-30.

Trend toward toll roads

A definite trend has developed toward toll facilities as a means of footing the bill for highway improvements, several speakers emphasized at the University of Tennessee Highway Conference, "New Frontiers For Highways," in Knoxville April 17-18.

Robley Winfrey, professor of civil engineering at Iowa State College told some 200 engineers, contractors, highway officials and equipment manufacturers that the shortage of dollar incomes for highway budgets has brought about the trend.



- Dependable water supply
- Constant fire protection

SERVING EVERY INDUSTRIAL NEED

Ford Motor Company, Cleveland, Ohio. 750,000-gallon Radial Cone Bottom Tank. Diameter 73'; head range 25'; height to bottom 100'.

Ford Motor Company, Hamburg, New York. 250,000-gallon Double Ellipsoidal Tank. Diameter 38'; head range 33'; height to bottom 123'.

PITTSBURGH-DES MOINES

Elevated Steel Tanks

These recently-erected tanks, serving the water storage requirements of two new Ford Motor Company plants, typify the hundreds of industrial PDM Elevated Steel Tank installations for companies of every size from coast to coast. Let us consult with you on the type and capacity of tank best meeting the demands of economy, efficiency and safety for your plant.

PITTSBURGH•DES MOINES STEEL CO.

Plants at PITTSBURGH, DES MOINES and SANTA CLARA

Sales Offices at:

PITTSBURGH (25) . . . . . 3414 Neville Island
NEWARK (2) . . . . . 216 Industrial Office Bldg.
CHICAGO (3), 1218 First National Bank Bldg.
LOS ANGELES (48) . . . . . 6399 Wilshire Blvd.
DES MOINES (8), 915 Tuttle Street
DALLAS (1), 1219 Praetorian Bldg.
SEATTLE . . . . . 522 Lane Street
SANTA CLARA, CAL., 621 Alviso Road

Ford Motor Co. photo of its River Rouge plant

Industry needs water—for power and for process. There's a big job ahead . . .

Quenching industry's thirst

Arthur J. Fox, Jr.
Associate Editor

INDUSTRY, with its inordinate thirst for water and its multiplex problems of waste water disposal, is to be increasingly the bread and butter of sanitary engineering—just as industrial building in this time of plant expansion dominates the structural picture.

This is not to say that there remain no serious problems of public water supply nor any further need for improvements of sewage treatment practice. Far from it! It means simply that design and construction of waterworks and sewage works are at least temporarily at a fairly flat point on the curve of scientific progress, while industrial water and waste problems mount with each new plant, new process, new product.

Sanitary engineers and chemists have reached a refinement stage on currently standard methods of water and sewage treatment. Means of supplying water fit for human consumption, then disposing of it fit for stream consumption, are pretty well established. Not nearly so well defined are the growing problems of delivering—then disposing of—industrial water.

The National Association of Manufacturers, in its water-in-industry survey published in 1950 through cooperation with The Conservation Foundation, was not seriously underestimating the situation when it said that few data "actually exist on this basic problem of industrial plant water supply and waste water disposal." Nor was it overestimating in stating: "Shortage of water for industrial purposes—just as surely as a shortage of manpower, of raw materials, or of capital—could defeat our hopes for future growth and prosperity, and even imperil our national safety."

That, coming directly from industry, is about as clear-cut a challenge as sanitary engineers could hear. And they are accepting it. Some prime examples of their solutions to the variable problem of water for industry follow. Admittedly, those presented are outstanding examples. But they depict the problem in its true extent and import. And they indicate an obvious trend toward increased demand by industry for engineering services in the water supply as well as waste disposal fields.

Some of these solutions have been worked out by industry itself; some have resulted from cooperative effort between city and industry; and still others are being evolved by cities for industry.

Re-use beats dowsing

With industry itself, successful quest for water can begin at home. Some of the cheapest industrial waters have come from conservation of existing supplies. Reuse is the key. And reuse implies waste treatment. In fact, the whole problem of water for industry is tied to pollution control.

• . . . **"those who help themselves"**—Only about 11% of industrial water users have their own private water sources; but this small group includes the big users, the 5% in the 10-mgd class who account for 78% of the whole industrial water take.

And with these big users, reuse of

water is not the obvious, accepted, good industrial practice one might assume. No reuse at all was practiced by 60% of NAM members responding to the 1950 survey.

But with those that do reuse water within their industrial plants, savings can be phenomenal.

The Fontana (Calif.) plant of Kaiser Steel Corp. is a classic example (ENR July 19, 1951, p. 40). The figure generally proclaimed as water needed in making one ton of finished steel is 65,000 gal; Kaiser cuts this to 1,200 gal. No water leaves the plant except by evaporation!

This 80,000-ton-a-month steel producer is on a virtual desert; war-time restrictions kept it away from the coastline. Kaiser has four separate industrial water circuits; only the first two get any fresh water. Stages three and four use this same water, plus treated domestic wastes mixed in at stage two. Treatment in process permits continued reuse.

Another outstanding example, a chemical plant, is said to have cut its water use by reuse and conservation from 130 to 4 mgd.

• **Pumping isn't consumption**—Greatest single industrial use of water—about half the total—is for cooling. And in this use it is not consumed, just pumped; often not polluted, just warmed.

In steel manufacture 83% of the total water used is for cooling. In the steam-electric power industry 99% of the water demand is for cooling. (Somebody has figured that half the energy of coal burned for power goes down the stream as heat.)

• **Reuse of sewage**—Much remains to be done on direct reuse of treated sewage. The outstanding Bethlehem Steel-Baltimore deal (described below) stands pretty much by itself as large-scale U. S. application of this idea. Reuse for agriculture on the other hand is fairly common—especially on the West Coast.

Southern California Edison Company was in the news in 1950 as planning an 8-mgd cooling water supply from a sewage plant source. And Standard Oil of California at that time was negotiating with Los Angeles for some of its Hyperion plant discharge. Nothing came of either of these schemes.

The large quantities of water brought long distances at great costs to quench the thirst of Southern California are still largely being dumped into the Pacific Ocean after one use—sometimes piped right past the very industries that could reuse them. Meanwhile, ground waters pumped for industrial use have grown salty.

STEELMAKING TAKES WATER, a variable amount depending on how hard plants try to conserve through reuse. Not every mill can locate near abundant water; with some, its a problem of delivery, then conservation. ENR photo.

Indirect reuse of sewage—spreading it to replenish ground water supplies—also has had a good bit of attention in Southern California, but hasn't arrived as yet. Two years of study at the University of California were reported at last fall's American Public Health Association Meeting in San Francisco: No satisfactory basis for design of sewage spreading areas has been developed, said the researchers. Mosquito, algae and odor control are some of the problems. Geology is the deciding factor—where to spread the sewage so that it will be recoverable. It won't work everywhere.

• **Care and feeding of streams**—In the broadest sense, nearly all industries with private, surface sources are reusing water, for there are not many who don't have someone else upstream using the water before it gets to them. And in this broadest sense, industry has its biggest water job to do. This job is waste treatment.

Quality-wise, the private, surface industrial water supply problem has its solution in waste treatment. And this is a problem which can be solved only by each individual plant doing its bit.

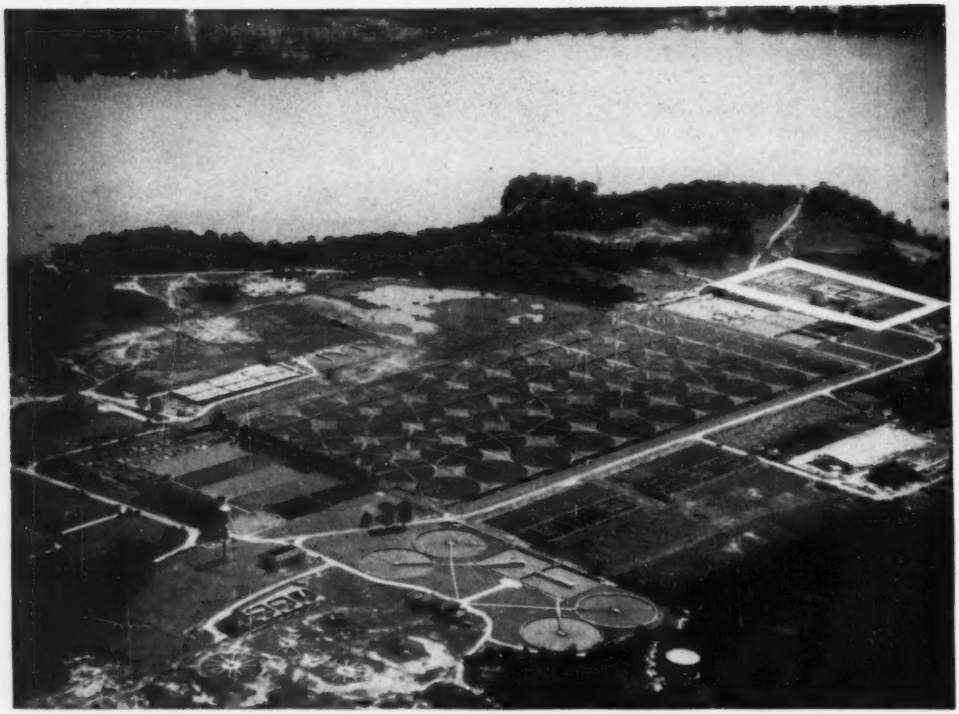
Untreated municipal sewage complexes and compounds the problem, of course. Complete solution obviously depends as well upon pollution abatement by individual cities.

City-industry deal

When an industry is already situated, and increased water demand is its problem, municipal-industrial cooperation can be the solution. Baltimore, Md., is prime case in point.

• **Growing market for treated sewage**—Baltimore has been selling sewage-plant effluent to Bethlehem Steel Co. at Sparrows Point since Dec 5, 1942. Recently announced expansion plans of Bethlehem (ENR Feb 7, p 27) mean that this double use of water—municipal, then industrial—is about to be expanded. (This is the United States' most significant project of its type; the practice, by necessity, has become fairly common in Europe.)

Bethlehem indicated recently that in the next decade it may take the entire effluent of Baltimore's Back River sewage treatment plant as industrial water supply. That means flow



WATER FROM SEWAGE—Baltimore's big Back River sewage treatment plant is source of 46 mgd of industrial water for Bethlehem Steel at Sparrows Point. Water plant (outlined in white) is expected to be expanded to take entire flow from sewage plant (155 mgd by 1965). Fairchild Aerial Surveys photo courtesy The Dorr Co.

from about a million people, estimated to reach 155 mgd by 1965.

Abel Wolman, who first saw the possibility then master-minded the whole scheme, acts as consultant to the steel company. He says it is now planning a second pipeline, parallel to the existing line but 96-in. instead of 60-in., sewage works to steel plant.

• **Present facilities**—Right now, Bethlehem takes an average 46 mgd of the treated sewage. This quantity gets necessary treatment in a company-owned waterworks right at the city-owned sewage works.

Sprawling Back River plant uses both activated sludge (20 mgd capacity) and 30 acres of low-rate trickling filters (capacity: 239 mgd). Effluent from the activated sludge process is low enough in suspended solids (25-ppm monthly average) to bypass treatment, getting only chlorination before entering the delivery line. Effluent from the trickling filters, kept below a 50-ppm monthly average, is flash-mixed with coagulant, flocculated, settled, screened and chlorinated in the industrial waterworks (present capacity, 30 mgd).

Delivery through the existing 60-in. reinforced concrete pipeline was originally by gravity all 7½ miles of the way. But a pumping station newly added to the line boosts its capacity from 46 to 65 mgd. There is a 90-mg reservoir at the steel plant, and the distribution system there is carefully distinguished from potable water.

• **Planned addition**—The planned 96-in. pipe to parallel the present delivery line will also have a pumping station on it. And while the two lines will normally operate by gravity, pressures could be exerted to boost total flow to some 200 mgd.

Baltimore will be just as pleased to sell more of its effluent to Bethlehem as the steel company will be to get it—over and above the financial considerations. For even now, citizens along Back River are pressing a court action begun in 1949 against alleged nuisance caused by plant effluent in the river.

John J. Baffa of New York and H. Heukelekian of Rutgers University reported early this year as consultants to the Back River Improvement Association that a 20-mgd increased-take by Bethlehem would mean immediate relief for the pollution situation. And they recommend that what effluent the industry doesn't take be put in the Patapsco River, rather than the Back River, for greater dilution.

• **Money-wise, mutually advantageous**—The whole scheme means income for the city; cheap, abundant water for the industry.

Bethlehem has historically pumped up to 170 mgd from the Patapsco at Sparrows Point, but that water is 4,000 ppm chlorides and thus limited in its uses. And steel production needs have far outgrown the 32 artesian wells that once satisfied fresh water demand, with the help of recirculation.

Pumpage of ground waters in the Baltimore area had reached 50 mgd, and salt was moving in when Prof. Wolman recognized Back River effluent as the cheapest available added water supply for Bethlehem. Chloride content of the sewage was tested at a 600-ppm peak. Infiltration into sewers below tidewater level was found to be the cause. Leaks were electrically located (conductivity varies with chloride content); sewers were re-

paired, and chlorides are now kept under 175 ppm.

A 20-year agreement set up in 1942 calls for Bethlehem's paying Baltimore $1,000 per month for average flows up to 25 mgd; $1,500 per month for 25 to 37.5 mgd; $2,000 per month for 37.5 to 50 mgd. For an extra $150 per month the city disposes of sludge from the industry's waterworks.

In return for these dollars Baltimore permitted construction and operation of the industrial facility on city property, and agreed to meet the required quality standards with its sewage plant effluent.

The city-industry agreement was expanded in 1951 to take the entire Back River plant effluent, to satisfy the total Sparrows Point industrial water need. The industrial waterworks will be expanded accordingly.

The city pitches in

Evidence of the thought cities are giving industrial water demand is especially important, since nearly three-quarters of all manufacturing plants get at least some of their water from municipal sources.

And easily the most outstanding current municipal project designed to develop an industrial water supply is in Charleston, S. C.

• **Fresh water at tidewater**—Charleston has plans for developing an industrial water potential of 2,500 mgd (2½ billion gallons per day)—all for the fantastically low figure of $3 million. And the supply will be delivered to the back door of an available 2,000-acre site that fronts on the navigable (but salty) Cooper River.

Ford, Bacon & Davis, New York, are consultants on the project. They first of all did a feasibility study for the independent Charleston Development Board. Then the city's Commissioners of Public Works came into the picture, fortified with a $175,000 HHFA loan for advance planning. They picked up where the developers had left off, rehiring Ford, Bacon & Davis to prepare contract drawings for a first stage that will produce a 1-bgd supply at a cost of about $2.27 million.

Plans have just been finished and revenue bond financing is now being worked out with an estimate that construction (a 3½-mile canal, a highway bridge and a mile-long earth dam) would take about 16 months.

• **Hydrology's the key**—Warren R. Bradlee of FB&D says he has never seen a set-up like this one—so much water for so little effort and money at a site accessible to ocean traffic.

Here's the answer: Water to be drawn from a reservoir on the now brackish Back River won't drain only from that stream's scant 78-sq mi watershed. It will also contain flow diverted from the Cooper River, which in turn includes 10-bgd average daily diversion from the 15,000 sq mi Santee watershed.

Charleston's planned water supply project is a capitalization on hydrology of half the land area of the state of South Carolina (30,305 sq mi).

• **Field first saw it**—The man who first saw possibilities of the project is Arthur M. Field, industrial developer, who was hired away from the Memphis chamber of commerce in 1945 to become chief engineer of the Charleston Development Board, grown out of a postwar planning committee.

Mr. Field's first responsibility was attraction of industry to the city, to prevent a business slump following World War II as had occurred after World War I. He looked for new industrial sites, with the realization that big industry means big water demand.

There was land aplenty along the Cooper River, and between it and its tributary, the Back. And there was deep water for navigation. But as far as the land and the navigable water went, so went salt.

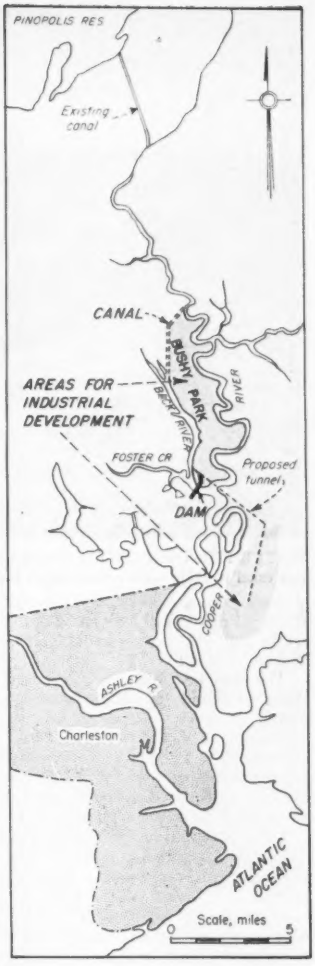
At Vicksburg, where the Corps of Engineers had a scale-model of the Cooper River set up for siltation studies, the worst was confirmed: studies of salt intrusion showed it would get nearly 20 miles above Charleston, on both the Cooper and the Back, under most severe wind and tide conditions. Fresh water would have to be put where salt couldn't get at it.

The scheme for doing this hit Arthur Field in 1949 as he looked at the swampy source of the Back River from the air. It was but a few short miles across lowland from there to a point on the Cooper, well above salt intrusions. He figured a diversion canal across the low divide and a salt cut-off of some kind at the lower end of the Back would be his answer. He was right.

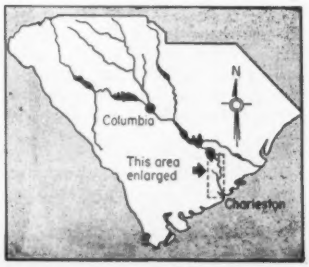
• **How it will work**—The 3½-mile Cooper-Back River diversion canal will be a cut averaging 10 ft deep with 35-ft bottom width and one on three side slopes. It will require about 500,000 cu yd of easy excavation in marsh mud, sand and clay. Velocities will be low enough so that no lining or other erosion control will be needed.

Upper reaches of the Back will be dredged out a little to improve the influent channel, and minor dikes will be built.

At the lower end of the Back River, only a mile from where it now joins the Cooper, an earth dam of the simplest sort will be built. This 6,000-



CHARLESTON (S. C.) SCHEME—Billions of gallons will flow daily to where new industry can use them when a project to tap half the entire state's runoff is developed. Plans are now ready. Water is not generally found so plentiful so cheaply.



WATER FOR INDUSTRY is coming longer distances at greater costs. Here, St. Joe Paper Co. of Florida digs an 18-mi., $2 million canal to bring surface water to its Gulf Coast mill. Demand of 30 mgd will be too much for present ground-water sources.

ft long structure will have an 80-ft top width and will contain about 1,200,000 cu yd of fill.

The river bed first will be dredged down to sound foundation material, and a sheet pile cofferdam will be driven to cut off the stream and tidal currents. There will be no dewatering. Earth will simply be dumped into the stream until the dam builds up to water level; from there up fill will be rolled. Forty-eight feet from hard marl to crest in maximum section, the dam normally will have about a 9-ft freeboard.

Prime purpose of the dam is to cut off salt, and a couple of rows of sheetpiling might have done that. But the earthfill will be used to serve a second vital purpose: it will carry a highway and a rail spur from the nearby Seaboard Airline mainline into Bushy Park, potential industrial area between the Cooper and the Back (see map).

There will never be a head differential greater than 5 to 6 ft on the dam. Tide range is 5 ft.

• **Flow described**—Daily flow in the Cooper past Bushy Park averages above 15,000 cfs (10 bgd). The diversion canal will tap just as much of this quantity as Charleston (and its future industries) will take from the Back.

As an example: Assuming there were a dozen new industrial water intakes sucking 1 bgd out of the Back River, that's the amount that would flow into it from the Cooper. Then this total flow, less minor losses, would be put back into the Cooper by the industries after use—restoring that river's flow-check on salt intrusion.

Long-time retention in vast Santee and Pinopolis reservoirs upstream makes the water of good quality for use. Its quality after use will depend, of course, on industrial waste requirements set by local authorities.

• **City needs water now**—Until the scheme bears fruit and thirsty new industries line the Back River, the City of Charleston has other use for the added water supply. The Back River project can augment a $500,000 Foster Creek supply Charleston is ready to develop to satisfy demand in excess of its present 47 mgd capacity.

West Virginia Pulp & Paper Co., presently Charleston's dominant industry, is already a 35-mgd customer, buying three grades of water—raw, settled and filtered. And now WVP&P has expansion plans that might mean another 50-mgd water demand.

• **Growth of demand**—Until 1904, wells supplied Charleston's water. Then Goose Creek supply and treatment plant were added. In 1929 the city tapped the Edisto River with a 23-mile aqueduct and stored and treated its water in a reservoir and waterworks on Goose Creek, 10 miles northeast of town.

Now, F. B. MacDowell, Jr., chief engineer and manager of the Commissioners of Public Works, is all set to divert some more water into the Goose Creek Reservoir. An intake will be built on Foster Creek, Back River Tributary, at a point now non saline 90% of the time. (After Back River Dam is built it will be fully protected from salt.) A 2¼-mile tunnel of 7-ft diameter—unlined and smooth in the peculiarly ideal marl—will lead gravity flow to a pump-well near Goose Creek. There, pumps will lift up to 75 mgd 17 ft into the existing reservoir.

In the meantime, the Charleston Development Board keeps busy, selling the city to prospective new industry —its No. 1 sales point, water.

• **Problem both quality and quantity**—There is no shortage of water in the U.S. Only ¾ in. of a total 8.5-in. runoff is captured and used by man. But there are places, getting less than the average 30-in. rainfall, where water volume is a problem. And there are others, getting more than a desirable dose of untreated wastes, where water quality is a problem.

Economic health of the nation depends on industry. Industry depends upon plentiful, good-quality water supply. Conservation of water supplies depends on prevention of increased pollution of sources and reduction of present pollution. The problem of pollution abatement is inseparable from the problem of quenching industry's thirst. Solutions to the former will help solve the latter. Industry's own contribution to the search for future industrial water will lie largely in proper use and disposal of its present supply.

9 YEARS OF PUMPING FOR A.G.&E. 1944-1952

To help meet the nation's need for power, the companies in the American Gas and Electric System are engaged in a vast expansion program.

On deep power plant foundations, pumping is usually Problem #1. How does A. G. & E. meet it? With MORETRENCH WELLPOINT SYSTEMS!

They worked "in the dry"

— in OHIO on the Muskingum River Plant and the Tidd Power Plant

— in INDIANA on the Tanners Creek Plant and the Twin Branch Plant

— in WEST VIRGINIA on the Kanawha River Plant and the Philip Sporn Plant.

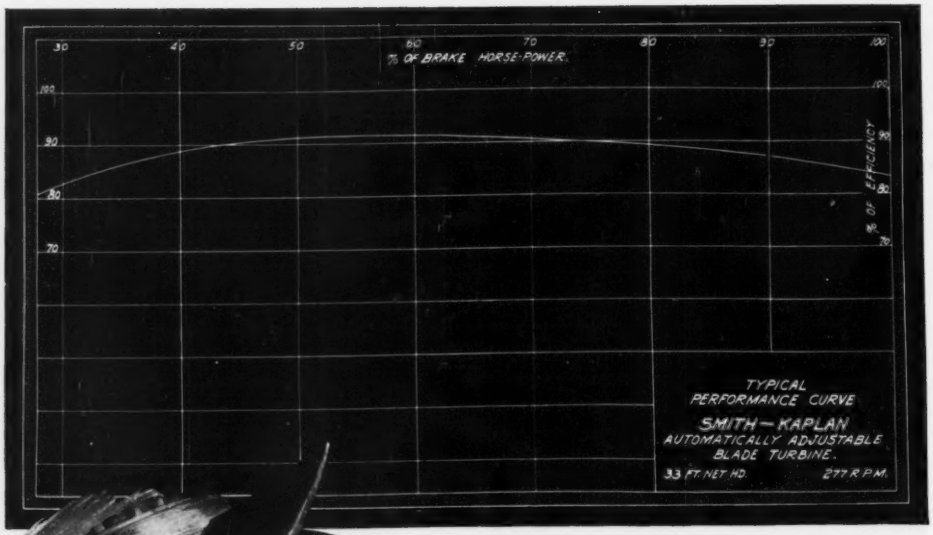
They know from experience, that for fast, efficient, economical dewatering, Moretrench is the answer.

It's YOUR answer too, if there's water on your job. Write, wire, phone our nearest office for an estimate.

MORETRENCH CORPORATION

90 West St. New York 6 | 4900 S. Austin Ave. Chicago 38, Illinois | 7701 Interbay Blvd. Tampa 9, Florida | 315 W. 25th St. Houston 8, Texas | Rockaway New Jersey

Canadian Representative: Geo. W. CROTHERS Limited, Toronto, Ontario



The SMITH-KAPLAN TURBINE

If your water power problem involves wide variations in flow and head, the characteristics of the Smith-Kaplan automatic adjustable blade turbine will be of interest to you. Its higher power per unit of diameter and its higher specific speed permits the use of smaller framed generators and decreased power house dimensions.

When the turbine gates are adjusted to changing load demands, the blade pitch is automatically adjusted, thereby keeping the gate opening and blade angle in proper relationship to produce maximum turbine efficiency at all times!

Write for full details and bulletin.

If It's Hydraulics—
Put It Up to Us!

S· MORGAN SMITH COMPANY
YORK • PENNSYLVANIA • U. S. A.

POWER *by* SMITH

SHOVEL HITS SOME TOUGH DIGGING for welded steel 72-in. force main as northern New Jersey gets a . . .

Stop-gap water supply

It won't put the North Jersey District Water Supply Commission comfortably on top of its long range supply problem—but the Ramapo force main now under construction certainly will afford a much needed breather in the race against demand. The main is to be finished this year.

A 4½-mile steel pressure pipe is being laid to carry pumped flood waters of the Ramapo River from Pompton Lake into Wanaque Reservoir. The $5 million project will be ready by fall, says Charles H. Capen, chief engineer of the commission (see box).

This new supply, to be tapped only October through May to avoid recreational pollution problems and to permit full flows in summer, will include all flow in the Ramapo in excess of a 40-mgd required minimum discharge—up to the limit of pump capacity. It will average 25 mgd over the year and will boost safe yield of Wanaque Reservoir from 85 to 110 mgd.

The Wanaque water system is New Jersey's largest (see map next page). It supplies 750,000 people in the cities of Newark, Paterson, Kearny, Passaic, Clifton, Montclair, Bloomfield and Glen Ridge. Demand peaked at 96 mgd in 1948 and, through conservation efforts, has since been brought to a fairly constant 90 mgd.

When New York City had its water troubles in 1949-50, metropolitan New Jersey was having it equally as bad—if not worse. Wanaque Reservoir was big enough but its 94.4-sq mi watershed was insufficient to keep it reasonably full.

According to Mr. Capen, when Wanaque was built (starting in 1920) runoff was figured largely on the basis of experience on New York City's and Newark's watersheds. It turned out to be less than anticipated. So when in 1949 rainfall fell to 38 in. (47 in. is average) Wanaque went nearly dry, reaching 30% of its 29,000-mg capacity on Dec. 26. A discharge of 10 mgd had to be maintained for minimum river flow requirements.

More storage than watershed is Wanaque's problem, Mr. Capen says. Present construction is aimed at reaping from the 160-sq mi watershed of Pompton Lake and putting into Wanaque Reservoir an additional amount of water to bring safe yield above demand—for a while, at least.

• **Future sources still unsettled**—For the long pull, water supply must grow further to keep pace with the area's growing population and industry. Where further water will come from depends largely on whether the Incodel plan comes into being. Eager New Jersey was first state to back this scheme of the Interstate Commission on the Delaware River Basin for full development water supply of the Delaware by a 4-state authority. (For background on the Incodel plan

(*Continued* on p. 76)

COVER PAGE . . .

In Wanaque, N. J., Charles H. Capen is directing the force main construction described on these pages—first significant addition to supply of the North Jersey District Water Supply Commission since 1930.

In Kansas City, Mo., next week he will assume presidency of the American Water Works Association during its 72nd annual meeting.

Vice-president of AWWA for the past year and member of the association since 1930, Mr. Capen has been with the North Jersey water supply agency since 1925 except for a short war-time sojourn with Army's Sanitary Corps. He has been the commission's chief engineer since 1942. For other officers and awards at the AWWA meeting see ENR report in the Men and Jobs pages. (ENR photo)

SEE THE New GarWood

3/4 yd. SHOVELS, CRANES

New ¾ yd. shovel, in standard-duty and heavy-duty models.

New 20 ton, heavy-duty truck crane, especially designed for long boom work.

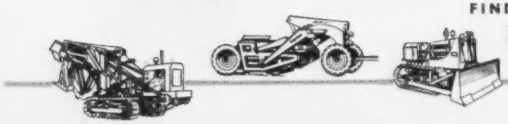
Designed to Combine These Outstanding Features . . .

- **INSTANT MANUAL CONTROLS** give a positive, smooth "feel" of the machine. Operator maintains a steady working pace.
- **POWER ACTUATED DRUM CLUTCHES** with exceptional sensitivity of control. Reduce operator fatigue, increase output.
- **DUAL RIGHT ANGLE DRIVE** connected by flexible universal couplings. Eliminates trouble factors of chain drives.
- **FLUID COUPLINGS,** offered as optional equipment, reduces shock loads — gives ultimate in smooth lift crane operation.
- **INDEPENDENT CHAIN CROWD** is powerful and positive, gets full engine power into the crowd . . . also many other features designed to insure efficiency at minimum operating expense.

GAR WOOD INDUSTRIES, INC.

FINDLAY DIVISION • EXECUTIVE OFFICES • WAYNE, MICHIGAN

Construction Equipment: Excavators, Scrapers, Dozers, Ditchers, Spreaders, Finegraders, Truck-mounted Road Graders. Truck Equipment: Dump Truck Bodies & Hoists, Winches & Cranes, Refuse Collection Bodies, Elevating End Gates.



Shovels

Gar Wood's 75 Series shovels are new to the civilian market although hundreds are in use by the armed forces . . . Three base machines are offered. The 75A, a standard duty ¾ yd. model; the 75B, heavy-duty ¾ yd. model and the 75BT, 20 ton truck crane.

All models are easily convertible *in the field* for shovel, lift crane, clam, dragline, magnet, trench-hoe and pile driver work. *Only* Gar Wood offers the new Foundation Borer, an attachment that opens an entirely new source of profit to power excavator operators. A few Gar Wood features are listed below. Check your Gar Wood shovel distributor for full information.

and TRUCK CRANES

New crane with standard 35 ft. boom . . . 75A lifts 16,500 lbs., 75B lifts 21,200 lbs. on 12 foot radius.

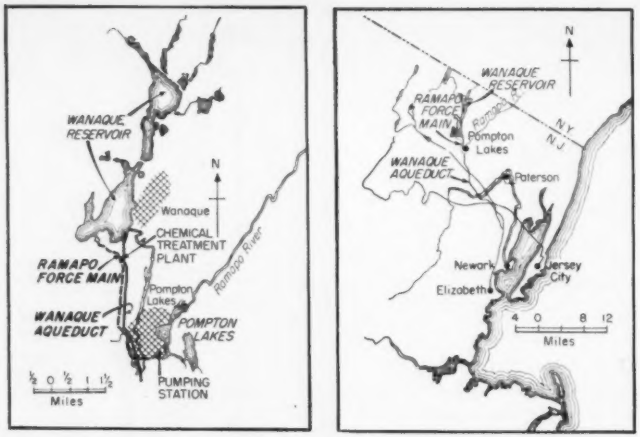
GAR WOOD INDUSTRIES

New FOUNDATION BORER

A Gar Wood Exclusive! Combines belling and boring for caisson holes into one operation for faster, cheaper construction of foundations.

New TRENCH HOE

¾ yd. dipper capacity with 3 other optional dippers. Digs to 17'10" depth with a cutting width of 39½".



RAMAPO FORCE MAIN is a 4½-mi link to tie in a new source. Ramapo River water will be pumped to Wanaque Reservoir where there is now storage space to spare. This north Jersey system supplies many big cities, heavily industrialized.

(*Continued from* p. 73)
see ENR June 28, 1951, p 104.)

North Jersey District Water Supply Commission and several of its member cities have possibilities in mind for piecemeal supply additions, but they look upon the Incodel plan as best bet for fully solving their problem.

It will be 1953 before the legislature of reluctant Pennsylvania can act on the proposed interstate scheme. And if they approve, more years would surely pass before any water could be delivered. So the present Ramapo diversion project is important.

• **Force main long planned**—The commission turned on the water at Wanaque Reservoir March 20, 1930; demand growth went dormant through the thirties; but as the depression ended it became obvious that the supply would be outstripped by demand by 1943.

Capen and Harold Gunther, his sole assistant through the war years, worked out plans and specifications for the Ramapo force main they knew would be needed. They were ready when 1950's water shortage convinced north Jersey's cities of the need.

• **Construction well advanced**—Work began last August. A welded steel pipe with 72-in. ID and 7/16-in. wall thickness is being laid the 25,000 ft from lake to lake. Up to now over 4,000 ft of it in 40-ft lengths has been put in the trench. Pipe deliveries have been pushed as fast as possible (the Water Resources Division of NPA and Bethlehem Steel, the supplier, doing their utmost). A good bit is stored on the right of way, but still another 15,000 ft must yet be delivered.

Miele-Salvatore, Newark contractors, are joint venturers on laying of the pipe, which comes to the job coated inside and out with coal tar enamel and wrapped outside with asbestos felt. Welding is subcontracted to Industrial Welding Co., of Hawthorne, N. J.

Trench depths get up to 19 ft in ground that varies from rock to quicksand.

Right-of-way is mostly land the commission owned for the first few miles of its 27-mile aqueduct from Wanaque Reservoir. (This aqueduct is 14 mi of twin 74-in. mains, 2 mi of 7-ft tunnel and 5 mi of single 74-in. main.)

Some new right-of-way had to be acquired, and the dam forming Pompton Lake on the Ramapo was bought last year. The 40-year-old hydro plant there, dating back to the cannonball-iron forge days has been dismantled, and a 100-mgd (4-unit) pumping plant is being built in its place.

• **Operation plan**—The pumps will operate economically at any rate from 50 to 100 mgd. Level of Pompton Lake will not be lowered. And as mentioned above, no water will be drawn during the four summer months.

Direct delivery of water into the existing aqueduct was ruled out because of variations in pressure, velocity, temperature and quality that would be caused. Instead, the pumped flow will discharge into Wanaque Reservoir off its west shore to be drawn through existing outlet works into the aqueduct. Aqueduct flow is by gravity when the reservoir is full. Five 23-mgd and one 11-mgd pumps can be switched on to maintain pressures the users need as head on the dam lowers.

Present treatment at the headworks of the aqueduct includes chlorination, hydrate of lime to minimize corrosion and prevent red water, and ammonia to minimize chlorine taste.

• **Improved treatment**—A new treatment works is being built astraddle the existing twin-pipe aqueduct and the new force main at a point where they run side by side below the dam. Chemical feed will be handled here and the building will also house stored chemicals.

It will also be possible here to treat the Ramapo water in the force main before emptying it into Wanaque Reservoir. Only chlorination is anticipated.

Turnpike, bridge planning active

Wisconsin state highway experts last week were studying tentative plans for a $25 million, 300 mi toll road from Chicago through Wisconsin to Minneapolis, chopping 45 mi from present routes.

The "completely tentative" plan will be used only for study of possible costs and revenues. The road would probably be constructed by the state using private bond issues for financing.

• **Virginia**—Plans for construction of a 75-mi toll superhighway in southwest Virginia marched a step forward with the start of an aerial survey of the route. With completion of the survey—expected in 90 days—officials of the state highway commission and the Old Dominion Turnpike Corporation will determine the final route. But before construction contracts can be awarded, nearly $75 million in revenue bonds must be sold.

• **Kentucky**—"Shoot for two" is the decision of the Louisville Area Bridge Committee regarding future spans across the Ohio River at Louisville. In conjunction with the two proposed bridges, estimated at $10 million each, the committee approved plans for a study to determine best general locations of the new spans.

• **New Jersey**—To speed construction of the 165-mi north-south Garden State Parkway, Governor Alfred E. Driscoll signed to law a legislative bill creating a three-member toll authority in the State Highway department.

Every Link the Same...

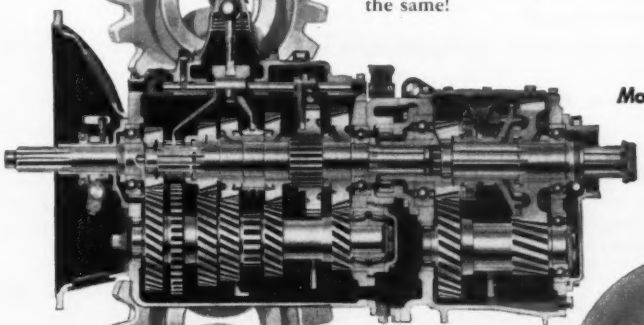
Here's one reason why every rig equipped with a Fuller ROAD RANGER 10-speed Transmission is posting new records for *higher average speeds:*

Every link is the same, in *equal, progressive,* and *selective* steps—at the driver's command *without gear-splitting.*

Every shift—up or down—is a 28% step. Every ratio is completely usable. Not one of the 10 forward speeds overlaps the next higher or lower ratio.

With these closely spaced ratios—controlled with *one* lever—it is *easy* for the driver to keep the engine operating in *the* maximum economy range . . . to keep the load rolling faster, for less.

Write today for complete information on the Fuller ROAD RANGER, the 10-speed transmission where every link is the same!



Model R-95-C ROAD RANGER®

where horsepower goes to work

Fuller TRANSMISSIONS®

FULLER MANUFACTURING COMPANY (Transmission Division), KALAMAZOO 13F, MICHIGAN

Unit Drop Forge Division, Milwaukee 1, Wis. • WESTERN DISTRICT OFFICE (SALES & SERVICE—BOTH DIVISIONS), 1060 E. 11th Street, Oakland 6, Calif.

"WHEN WILL THE JOB BE DONE?" THE REPORTER WANTS TO KNOW

Q. *As chief engineer, will you tell me about the plans for the new turnpike?*

A. Well, I can say plans are up in the air.

Q. *You mean there'll be a delay?*

A. On the contrary. We're mapping the entire area from the air. We'll have complete, detailed, accurate topographic maps of a 1-mile wide route strip in a fraction of the time it would take to survey the route by rod and transit methods. Aero Service of Philadelphia is doing the job.

Q. *What about the cost?*

A. Less than half the cost of ground methods.

LOOK AT THESE FIGURES:

	Ground Method		Aero Method	
	Cost Est.*	Time Est.*	Cost	Time
Penna. Turnpike Extension . . .	$415,000	2½ years	$83,000	145 days
Bear Mountain Highway Link . .	74,400	2 years	17,500	90 days
210,000 Acre AEC Facility . . .	—*Not available for release*—			160 days
City Mapping, Durham, N.C. . .	180,000	5 years	30,000	7 mos.

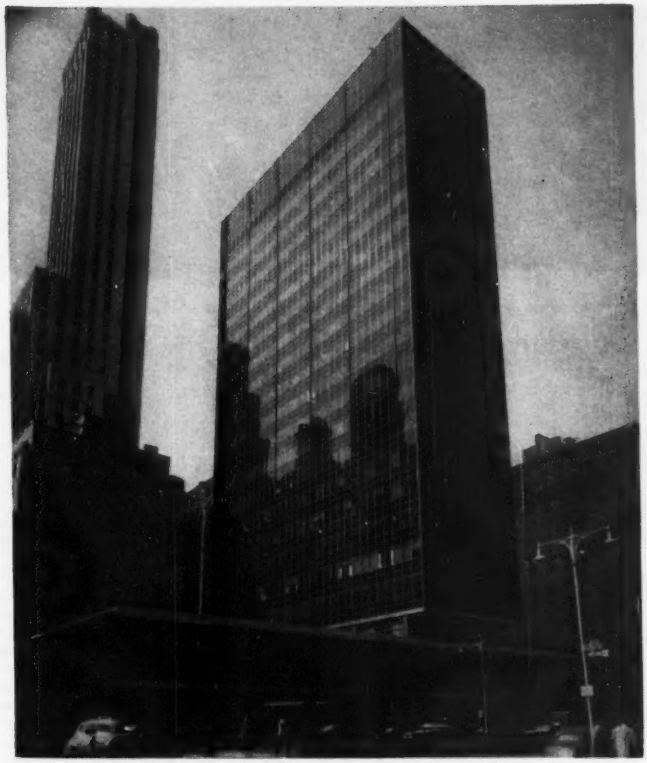
**These estimates made by our clients' engineers*

Aero can save time and money on surveys for City Planning, Civil Defense, Plant Development, Oil and Mining Exploration, Highways, Railroads. Whatever your mapping requirements, it will be worth your while to consult Aero Service—pioneer and leader in aerial mapping.

TOPOGRAPHIC MAPS • PLANIMETRIC MAPS • PRECISE AERIAL MOSAICS
AIRBORNE MAGNETOMETER SURVEYS • RELIEF MODELS
COLOR PHOTOGRAPHY

AERO
SERVICE CORPORATION
PHILADELPHIA 20, PENNSYLVANIA
Oldest Flying Corporation in the World

In Canada our affiliate is Canadian Aero Service, Ltd., *Ottawa*



LEVER HOUSE—24 story office building in New York City—has just been completed.

Glass-walled skyscraper

- **Even spandrels are glass-faced**
- **Stainless steel trim interlaces exterior**
- **Cleaners work from scaffold hung from roof**
- **Overhanging building end cuts foundation costs**
- **Narrow tower has novel wind bracing**

DELICATE AND TRANSPARENT, a narrow shaft of glass 24 stories high pierces the New York City skyline, its mirror-like exterior incongruously reflecting its massive, opaque skyscraper neighbors.

Its broad, two-story high base keeps surrounding buildings at a respectable distance. This glass tower was designed to be seen by the man in the street, as well as to capture daylight for interior illumination.

It is the new headquarters office building of Lever Brothers Co., manufacturer of soap, detergents, cosmetics, toothpaste and oleomargarine. Built at a cost of $6 million, it will be solely occupied by the 1,200 employees of the company's four divisions.

Lever House occupies an entire block front on plush Park Ave., between 53rd and 54th St., less than a half mile north of Grand Central Terminal. This location, the company figures, will save both it and its employees time and money. It is convenient to the offices of the many people with whom the company does business. And it is excellent for subway riders and commuters.

• No setbacks above third floor—In planning Lever House, the company had one primary objective—a building with 130,000 sq ft of office area that would be adequate for present needs and future expansion.

An 8-story building would have been adequate if it covered the entire site (200 ft on Park Ave., 155 ft on 53rd St., and 192 ft on 54th St.) and had no setbacks. While the city's zoning law would have permitted this, such a structure would have extensive interior areas far from windows—a condition that might affect employee efficiency adversely.

The zoning law would also have permitted a tall building with setbacks, like a tiered wedding cake. But this design, too, has disadvantages—relatively high construction costs, unsatisfactory appearance, possibility of close neighbors obstructing light, to mention a few.

Lever Brothers decided instead to take advantage of a provision in the zoning law permitting a building of any height that does not occupy more than 25% of its lot. Their tower starts as low down as the third floor, to conserve the maximum amount of daylight for its occupants and neighbors.

This design permits wings to be erected at the rear of the site when additional space is needed in the future. More than 25% more desk space can be added in this way without interfering with the present office arrangement.

For more immediate expansion needs, the entire sixth floor has been set aside. It is now used for storage.

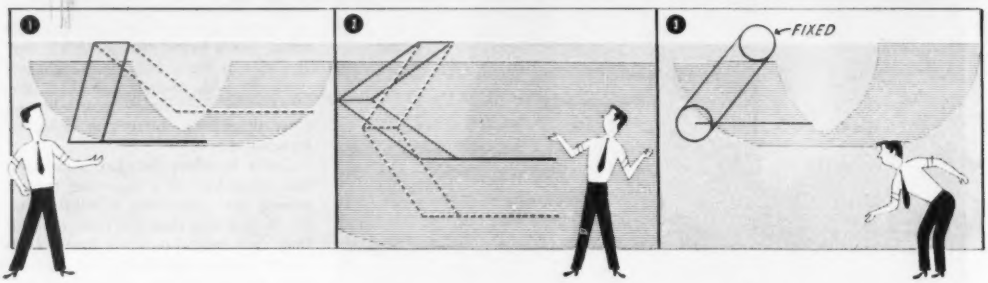
• Does it stand on stilts?—The building, which is completely air conditioned, contains 21 office floors, plus three floors for mechanical equipment on top. A garage in the basement accommodates 50 automobiles. Gross building area is 289,600 sq ft, net office area 131,000 sq ft.

Street level is occupied by an auditorium seating 200, a demonstration kitchen, service areas in the rear, including provision for off-street loading, and a glass-enclosed lobby, with stainless steel trim. Though there are entrances from the three bordering streets, the lobby is set back on all three sides, leaving space for an arcade and garden. Building columns outside the lobby thus are exposed to view from the street. Hence, the structure appears to be standing on stilts.

The second floor covers the entire lot, except for an open well directly over the garden. Purpose of the well is to admit daylight into the interior of the building base.

An employee recreation lounge on the second floor overlooks the ground-floor courtyard. The second floor also

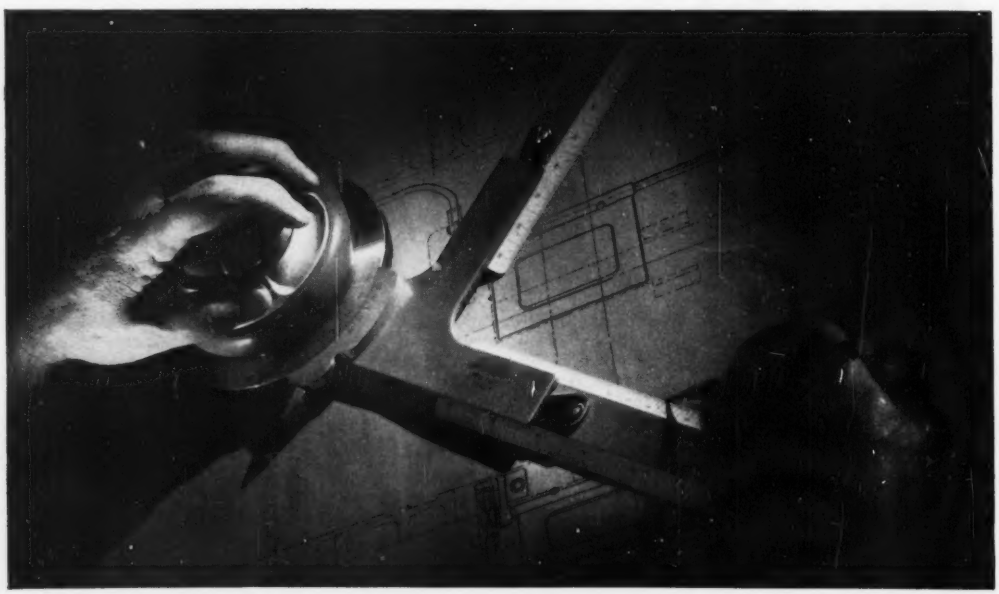
(*Continued on p. 83*)



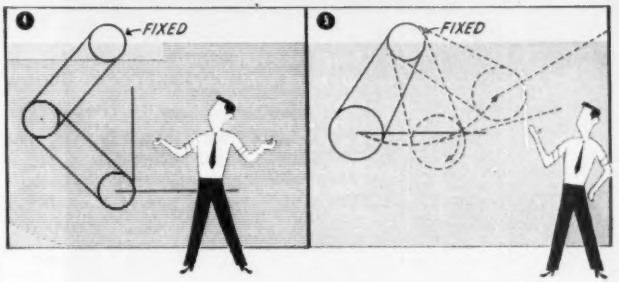
Start with a parallelogram somewhat like this. Visualize one of its short sides anchored to the top of a drawing board parallel to your base line, and let the remaining three sides be free to move together. Add a projecting straightedge to the bottom side as shown, and it will theoretically stay parallel to the base line. Parallel lines could be drawn anywhere within the shaded area above. But clearly, that field of action is too limited.

To obtain parallel motion over the entire working surface of the board, a second parallelogram could be coupled to the bottom of the first so that both have one short side in common. An elementary drafting machine would result . . . at least in principle. In practice, it would fall short because the slightest play at any of its 8 joints would create gross error at the straightedge.

What is needed is a better mechanical design based on the same parallelogram principle. Take a pair of rotating drums, connect them with a tight steel band, and the assembly will behave like a parallelogram if the drum diameters are equal. Now couple a second band-and-drum assembly to the first in such a way that they have the middle drum in common . . . and you have the basis of a modern drafting machine.



and find out WHY— BETTER!"



The band-and-drum machine, with all three drums of precisely equal diameters and with bands which will not slip, will draw absolutely parallel lines over the entire working area. But if the drum diameters are not equal, the parallelogram principle is violated and the machine cannot draw parallel lines. The greater the difference in diameter the more the lines will be out of parallel.

Here, in exaggerated form, is what happens when two of the drums are not equal in diameter. This could occur in either arm of the machine, conceivably in both arms with the errors being additive. From this it is clear that a central factor in the accuracy of a drafting machine is the accuracy of all drum diameters. That is why K&E goes to very extraordinary lengths in this regard in building PARAGON Drafting Machines.

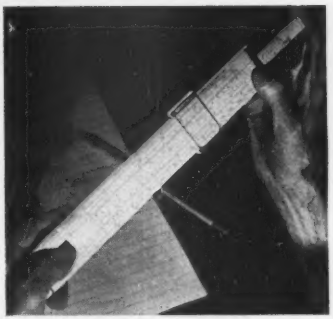
These basic principles and the advanced engineering design in the PARAGON combine to give you the finest in drafting machines. You realize this as soon as you place your hand on the controls.

The scales rotate freely with the lightest pressure on the protractor control ring. Release it and they are locked at the nearest 15° position. Intermediate angles are easily set.

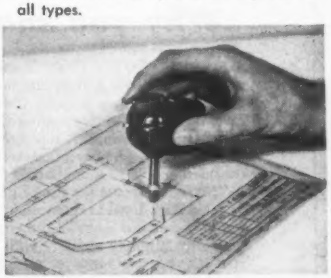
Another PARAGON feature is the open center construction of the arms. Even when they are twisted by lifting the head of the instrument off the board, it is impossible to disturb the factory-set band tension.

Ask your K&E Distributor or Branch to tell you about other PARAGON features or give you an actual demonstration.

The Right Angle



An engineer without a K&E Slide Rule is like a doctor without a stethoscope. It's the badge of the profession . . . with good reason. The first American-made slide rule was a K&E, and generations have known these rules for their precision, readability and velvet-smooth operation. They come in all types.



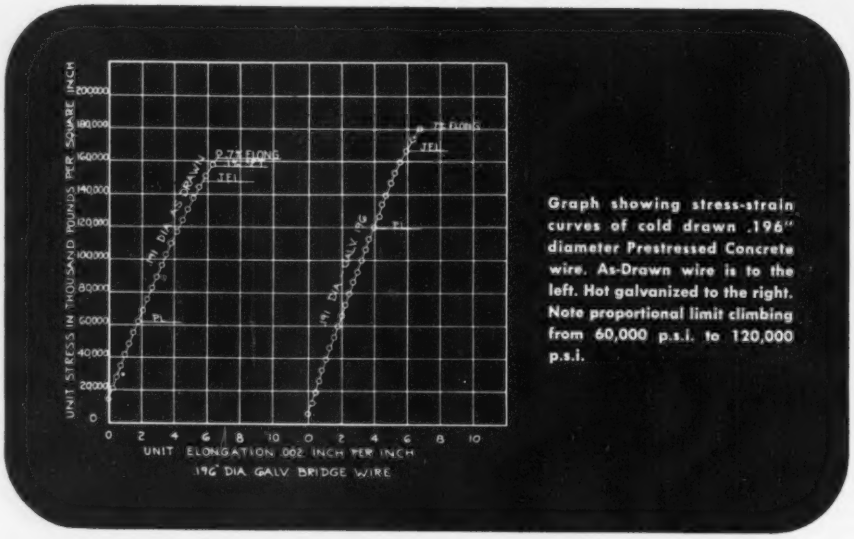
After you've once used a K&E MOTORASER,† you'd no more go back to hand erasing than you'd take to drawing with your gloves on. With MOTORASER you can either pin-point your objective, or cover a larger area without damage to the drawing surface. Runs on 110 volt 60 cycle AC, or DC with an inexpensive adapter.

†TRADE MARK

K+E

NEUFFEL & ESSER CO.

PRESTRESSED CONCRETE



Graph showing stress-strain curves of cold drawn .196" diameter Prestressed Concrete wire. As-Drawn wire is to the left. Hot galvanized to the right. Note proportional limit climbing from 60,000 p.s.i. to 120,000 p.s.i.

Why you should use hot-dipped galvanizing

SURFACE PROTECTION *is not* the chief reason to specify hot-dipped galvanizing on your post-tensioned Prestressed Concrete projects. It's true that this method gives the best protective coating against corrosion. More important, however, hot-dip galvanizing of the acid steel relieves the wires and raises their elastic properties considerably above those of cold drawn wire.

This wire permits the use of design-tension stress of 120,000 p.s.i. Used at this value, you are always working in the elastic range of the wire itself. And we can guarantee absolute stability with no relaxation of the steel . . . your assurance of safety for the life of the structure.

Each length of Roebling Prestressed Concrete Strand is made into an assembly at the factory with the use of specially designed fittings. Each fitting develops the full breaking strength of the strand without exceeding the yield point of the material in any part of the fitting. Each assembly is then proofloaded in excess of the recommended design-tension stress.

At the construction site the use of an inexpensive hydraulic ram brings the strand assemblies to stress in minutes, cutting the on-the-job labor costs to a minimum. And you never need worry about costly take-ups either.

Strand for post-tensioning is just one of a full line of Roebling Prestressed Concrete products. Wire and strand for *pre-tensioning* are made of high tensile acid steel that results in exceptionally high elastic characteristics. They are specially treated to greatly increase their bonding quality, too.

We manufacture our own prestressing materials. We know they will deliver all we promise and more. Get the facts and figures on Roebling Prestressing materials. Write Prestressed Concrete Department, John A. Roebling's Sons Company, Trenton 2, New Jersey.

Roebling Prestressed Concrete Strand and its specially developed fitting which are available in a complete range of sizes from ⅜" to 1-9/16". With an inexpensive hydraulic ram, assemblies such as these can be brought to stress in a matter of minutes.

ROEBLING

ATLANTA, 934 AVON AVE • BOSTON, 51 SLEEPER ST • CHICAGO, 5525 W. ROOSEVELT RD • CINCINNATI, 3253 FREDONIA AVE • CLEVELAND, 701 ST. CLAIR AVE, N. E. • DENVER, 4801 JACKSON ST • DETROIT, 915 FISHER BLDG • HOUSTON, 6216 NAVIGATION BLVD • LOS ANGELES, 5340 E. HARBOR ST • NEW YORK, 19 RECTOR ST • ODESSA, TEXAS, 1920 E 2ND ST • PHILADELPHIA, 230 VINE ST • SAN FRANCISCO, 1740 17TH ST • SEATTLE, 900 1ST AVE S. • TULSA, 321 N. CHEYENNE ST • EXPORT SALES OFFICE, TRENTON 2, N. J.

(Continued from p. 79)
contains the mail room, stenographic pool, business-machines operations.

Lever Brothers considered the possibility of locating retail stores in the base. A shopping-traffic survey showed, however, that the net return would be small compared with the required capital investment. Furthermore, stores would have needed basements, whereas the company wanted the basement for its garage and storage space. Finally, stores would have destroyed the dramatic effect of a building that seems to float in the air above a landscaped patio.

On the third floor, where the tower begins, is an employee cafeteria and a landscaped terrace atop the second-floor roof. The cafeteria can seat 300, accommodate the company's entire personnel within a two-hour period.

The rest of the tower, except for the mechanical floors, is occupied by offices and a vertical transportation core at the rear of the building. In plan, this 24-story tower is 180 ft long by only 50 ft wide. No desk is more than 25 ft from a window.

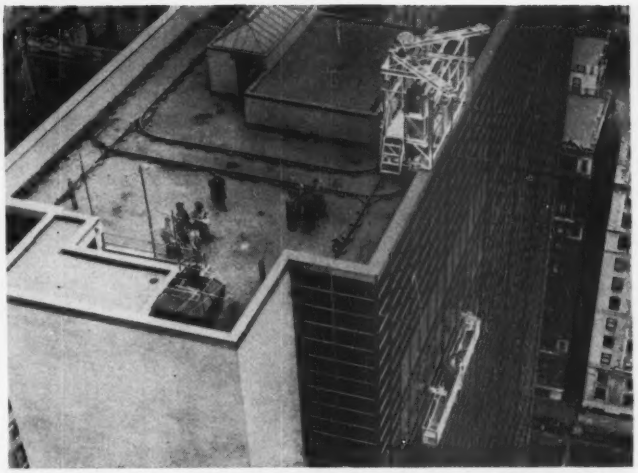
• **Offices sealed in glass**—In a city saturated with skyscrapers, like New York, such a tower normally would hardly attract attention. What makes Lever House particularly imposing is the unique treatment of its exterior.

Non-opening windows occupying slightly more than half of the 12-ft 4-in. story height form a continuous strip around the building at each level. Above and below them are spandrels faced with wire glass. Backup is 4-in. solid cinder block and 2 in. of cellular-glass insulation.

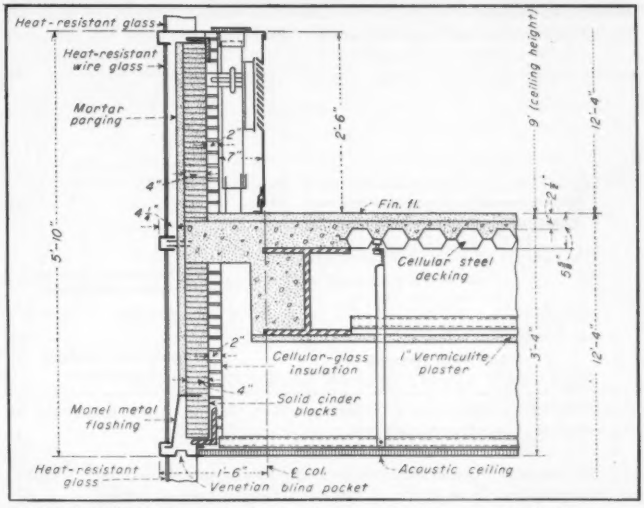
Sills, mullions and heads are sheathed in 18-8 chrome-nickel stainless steel, the light color contrasting sharply with the blue glass.

The result, the architects say, is an easily maintained durable exterior that seals air-borne dirt out, keeps expensive conditioned air in. They estimate that if conventional construction had been used, two to three times as much cleaning work would be needed in the offices. Air conditioning and heating costs would be higher. Cost of installing movable windows would have been greater, and the washing schedule for window interiors would be longer.

• **Window-washers' scaffold**—To simplify and speed up washing of the building exterior, Otis Elevator Co., in conjunction with the Lever House architects and the consulting structural and mechanical engineers, developed a power-operated scaffold for cleaners. They will work from a 28 x 2½-ft platform capable of moving up or down at 35 fpm. Suspended and powered from a crane on the roof, the platform will



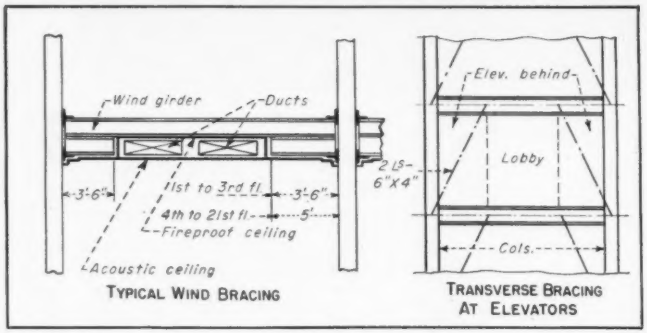
ROOF-TOP CRANE supports and powers a window-washers' scaffold (foreground).



DOUBLE CEILINGS and glass-faced walls are unusual features of this building.

OFFICES have acoustic-tile ceilings with flush fluorescent lighting fixtures.

RIVETERS connect wind girder to column. Girder end is reinforced with beam stub.



WIND BENTS in office areas are rigid frames (left). In the elevator bay, girders are braced with story-high knee bracing (right).

run on vertical stainless-steel rails, which are spaced 28 ft apart. It has a gripper at the center to ride a rail and is braced at both ends through rollers against the stainless-steel mullions.

The crane runs on standard railroad tracks just inside the cornice. It weighs 10½ tons, including a 3½-ton counterweight, and travels at 25 fpm. A switching system permits crane and scaffold to be stored at the center of the roof, out of sight from the street, when not in use.

The crew controls vertical movement with pushbuttons. Horizontal movement is accomplished by raising the platform above the cornice to detach it from the rail, then shifting it until grippers automatically find the next rail.

The owner estimates that two men can wash Lever House and its 1,400 windows in only six days.

• **Columns set back**—It is noteworthy that the exterior design does not permit structural members to interrupt the glass surfaces. The building has a structural steel frame with columns and spandrels set back 18 in. along the sides of the tower. Columns along the Park Ave. end are set back 10 ft.

The end arrangement resulted in a saving in foundation costs. It enabled the piers, which are founded on rock, to be built clear of the structure under Park Ave. that carries the tracks of the New York Central R.R.

In the tower office areas, there is only one row of interior columns.

• **Wind bents**—Because the tower is tall and narrow (height-width ratio is 6:1), wind stresses are sizable. Transverse wind bents at 28-ft intervals in the office areas were designed as rigid frames to carry the 20-psf wind load on the building exterior. To resist the end moments, ends of the wind girders were reinforced; stubs of wide-flange beams were riveted to their bottom flanges (see sketch). The riveted connection to the columns was made at top and bottom of the reinforced sections with T-beams. These were formed by splitting an I-beam along the web.

Around the elevators, wind stresses are resisted in a different manner. The six passenger elevators are arranged in two groups of three each on opposite sides of a lobby in a 27 x 25-ft bay. In the transverse direction, the four columns of this bay are part of two wind bents. The wind girders are braced at each level with a story-high knee brace alongside each elevator group, without obstructing the lobby (see sketch).

The four elevator columns also are part of two wind bents in the longitudinal direction. (Though the building is long compared to the height, the structural engineers favored longitudinal bracing because of the light walls.) In these bents, though, the story-high knee braces meet at the midpoint of the girders and are covered by the elevator-shaft walls.

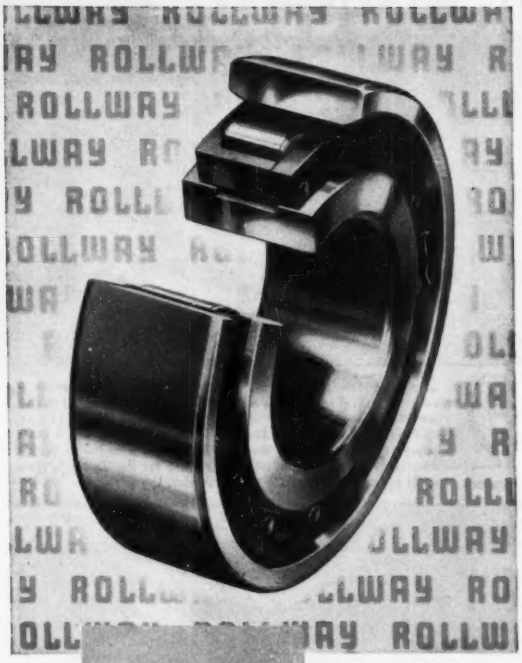
Floors in the office areas consist of cellular steel decking topped with 2½ in. of stone concrete and finished with asphalt tile. A 1-in. thick vermiculite-plaster ceiling fireproofs the beams and the under side of the floor.

The air-conditioning ducts are located under this ceiling. Below them is an acoustic-tile ceiling, with flush fluorescent lighting fixtures (40 ft-c at desk level).

The duct system serves the interior of the building. A high-pressure system feeds under-window units to condition peripheral areas.

In a building of this type, distribution of mail and interfloor correspondence generally is troublesome. But for Lever House, distribution has been eased by the installation of a vertical conveyor capable of transporting 4½ tons of mail per hour. Driven by a 5-hp motor at 60 fpm, the conveyor consists of a continuous chain with 20-lb capacity carriers spaced 8 ft apart along it. Through a comb-like interlacing action, the carriers automatically drop their loads at selected stations onto gravity conveyors. The owners estimate that the system will save $150 a week in mail distribution.

Skidmore, Owings & Merrill were the architects; Weiskopf and Pickworth, the structural engineers; Jaros, Baum & Bolles, the mechanical engineers. George A. Fuller Co. was the general contractor.

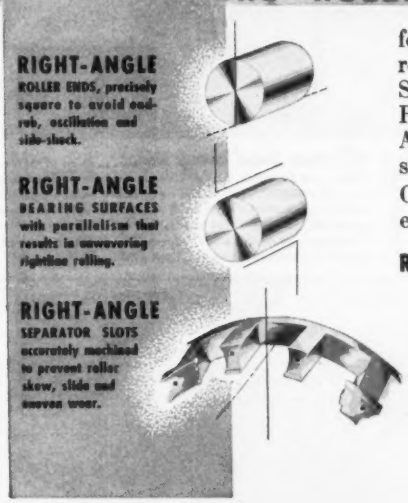


In-Built Trueness...

basis for longer life and lower cost!

Unwavering right-line rotation . . . that's the immediate result of in-built trueness in Rollway roller bearings. There's no skew, no side-shock, no roller-end-drag. Internal forces are balanced by matchless precision in related parts. Bores are precisely cylindrical. Separator surfaces are rigorously parallel. Roller ends are truly square on every diameter. And bearing surfaces match both the separator slots and the roller races.

Over the long run, life expectancy is greatly extended. Cost per unit of time falls sharply.


RIGHT-ANGLE
ROLLER ENDS, precisely square to avoid end-rub, oscillation and side-shock.
RIGHT-ANGLE
BEARING SURFACES with parallelism that results in unwavering rightline rolling.
RIGHT-ANGLE
SEPARATOR SLOTS accurately machined to prevent roller skew, slide and uneven wear.

Rollways Roll Right Because They're Made Right

Let our engineers help you to select the Rollway bearing that is exactly right for your application. Our years of specialized bearing experience and complete engineering and metallurgical service are always at your command. No cost. No obligation.

Nationwide Replacement Service: Rollway bearings are available for replacement through authorized bearing distributors in principal cities. To locate, consult classified 'phone directories under BEARINGS. Rollway Bearing Co., Inc., Syracuse 4, N.Y.

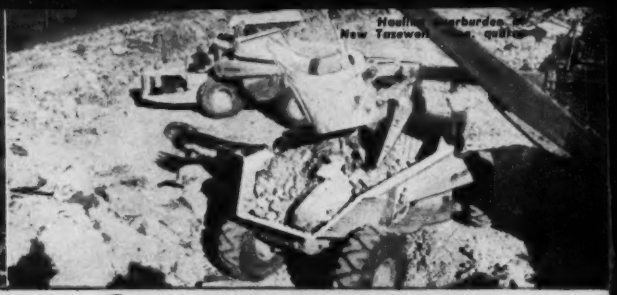
SALES OFFICES

SYRACUSE	DETROIT
PHILADELPHIA	CLEVELAND
BOSTON	LOS ANGELES
PITTSBURGH	HOUSTON

ROLLWAY BEARINGS

Complete Line of Radial and Thrust Cylindrical Roller Bearings

Increase PRODUCTION . . .



1 ***Haul anywhere*** . . . Tournarocker is a new kind of haul unit built from the ground up for "off-road" hauling. It safely travels mountain trails and cross-country as well as highways and city streets. It hauls capacity loads over any kind of terrain. And, it stands up to tough, rough hauling work on steep grades with minimum maintenance. Optional Electrotarder provides added braking action for safety on steep grades.

2 ***Speed loading*** . . . Big, wide "target" areas make it easy for shovel or dragline operators to get faster loading cycles with Tournarockers. Body opening on 9-ton size is 7′ x 11′, on 18-ton is 9½′ x 12½′, on 35-ton is 10′2″ x 17′2″. Width is most important because radial distance is hard for operator to judge. Rear of body provides a wide, low entry for the dipper to give extra speed advantage for the excavator.

Dumping sandstone near New Haven, Conn.

5 ***Reduce time dumping*** . . . a touch of electric switch on operator's panel activates hoist motor . . . means a fast, safe dump. Independent brakes on front and rear allow operator to safely back to edge of fill . . . lock rear wheels and dump over edge . . . yet keep prime mover in forward gear for safety and fast getaway. There is no delay for hydraulic pressure to build up, no slow jacking up by hydraulic pumps. Loads fall free and FAST!

6 ***Cleans load every time*** . . . even in mud and sticky clay, Tournarocker dumps clean. The streamlined body sheds material readily . . . body can be raised to vertical position to clear load . . . no material rides back to the excavator to steal pay-load room on next trip. Large boulders or oversize rock easily clear and can safely be dumped over edge of fill. Rocks cannot roll forward against wheels nor can material pile under rear end.

Stripping quarry rock near Phoenix, Ariz.

Stripping coal mine at Mt. Carmel, Pa.

9 ***Cut maintenance troubles*** . . . because Tournarocker has no hydraulic lift complications, no high pressure jack lines to keep tight, no long drive-shafts to rear-wheel drive, the most common maintenance problems of rear-dump haul units are eliminated. Owners in all parts of the world are reporting exceptionally high mechanical efficiency and low maintenance costs handling heavy rock and ore with Tournarockers.

10 ***Improved safety*** . . . low center of gravity, good clearance, high visibility, front-wheel drive, 90° power steer, giant tires, big 4-wheel air brakes, push-button electric control, big comfortable air foam cushion seat, high maneuverability . . . all these features combine to make this rear-dump hauler an important asset for safety. This permits fast hauling, saves time on dump, and makes it easier to train new operators.

LE TOURNEAU
PEORIA, ILLINOIS

TOURNAROCKERS

TRACTION ADVANTAGES of A CRAWLER PLUS HIGH-SPEED on RUBBER

Simplify JOB MANAGEMENT

Road construction between [illegible] and Tecate, Mexico

Mountainside road relocation near Wenatchee, Wash.

3 ***Cut spotting delays*** . . . You need fewer "spots" with these BIG haul units, and, because of their big tops, it is easier and quicker to put them under the dipper. The prime mover can pivot at right angles to the body providing a 90° angle for prime mover wheels. That saves time at every spot. Operator can back in fast because he has positive power steer and can stop instantly with air-operated multi-disc air brakes.

4 ***Work fast in tight quarters*** . . . positive power steer, 90° turns, electric controls, multi-disc air brakes that have more braking surface on a single wheel than most haul units have on all four wheels . . . all contribute to fast handling over steep, narrow, winding pit roads. Giant tires roll easily over rough surfaces, steer easily out of ruts, give operator confidence under the most difficult hauling conditions.

Hauling rock overburden

Hauling clay for [illegible] Ohio cement plant

7 ***Save dump cleaning*** . . . giant tires, big, four-wheel, multi-disc air brakes, powerful front-wheel drive, plus the rocker dumping action, make it easy for the Tournarocker operator to dump his entire load cleanly and safely over the bank even on a soft fill. This reduces time and expense of dump clean-up, provides continuous free dump area along entire fill, eliminates dumping delays and speeds up haul cycles.

8 ***Cut weather delays*** . . . Tournarockers keep hauling even when crawlers can't get through! Giant tires, 2' wide and up to 7' diameter, give ample flotation for soft going. When a wheel slips, Tournamatic differential applies 4 times the pull to wheel on firmest footing. Independent power steer turns prime mover to seek new footing for better traction to pull out of mud holes. Job records prove these all-weather features.

Railroad relocation near Umatilla, Ore.

Building dam in northern Algeria

11 ***Operator comfort*** . . . from an employee relationship standpoint, as well as safety, Tournarocker is an asset to your organization. The big air foam cushion seat eliminates "bounce" . . . no "up and down" ride on these Tournarockers. Pushbuttons on the instrument panel actuate electric motors that eliminate all manual work of steering. Fatigue factors are greatly reduced on Tournarockers. This means increased production for you.

12 ***Insure future earnings*** . . . Behind the Tournarocker prime mover, you easily interchange Carryall scrapers, bottom-dump haulers, cranes, flat-bed trailers. This gives you a plus in insurance of steady earnings in any season and any time. And, any additional trailing unit is available anytime at only approximately 25% of the initial cost! Bulldozer blade or snow plow can also be added on the small "D" for extra profits.

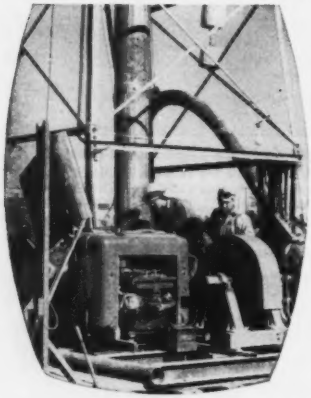
Mail today to: R. G. LeTOURNEAU, INC., Peoria, Illinois

NAME..... TITLE.....
COMPANY.....
STREET.....
CITY..... STATE.....
Type of work.....

- ☐ Send us more information
- ☐ Have Distributor call regarding:
- ☐ 9-ton, 28 m.p.h. Tournarocker
- ☐ 18-ton, 35 m.p.h. Tournarocker
- ☐ 35-ton or 50-ton Tournarocker

LeTOURNEAU LeT EQUIPMENT

"Making Hole"
is just part of our job



To the well driller "Making Hole" means that everything is running smoothly and the hole is getting deeper and deeper. But to Layne, "Making Hole" is just part of building a fine well water supply.

Before a single rig is placed, Layne has used a lot of know-how planning, plotting and figuring out such things as; what size casing and what depth it is to be set, what kind and how much sand screen to use, what kind and size shafting to use and how much horse power the motors should have to produce the stipulated amount of water against a certain indicated pressure. Once all of these answers are on paper, they must be transmitted into an underground construction project;—a task that requires a lot of skill and ability.

But whether for a single unit or many, you may be sure that if installed by Layne, all will have the same peak efficiency, operate with precision smoothness and be of utmost dependability for now and the years to come.

For late catalogs or specific information on any phase of Layne's water development services, address

LAYNE & BOWLER, INC.
General Offices, Memphis 8, Tenn.

Layne
WATER WELLS
VERTICAL TURBINE PUMPS
WATER TREATMENT

HOPEFUL that construction of a new Mississippi River bridge in New Orleans may be undertaken are N. E. Lant, (left), and Louis C. Duclos of the Louisiana Highway Department.

Revive interest in New Orleans bridge

When asked at the recent ASCE convention in New Orleans if there was going to be a new Mississippi River bridge at that city, N. E. Lant, chief engineer, and Louis C. Duclos, head bridge designer, Louisiana State Highway Department, would only say they hoped so. But they admitted that the city's new parkway system has revived interest in the long-time dream of a bridge from the downtown business section. Now, one has to use a ferry or Huey Long's bridge some 6 miles upstream.

The Lant and Duclos paper before the ASCE meeting, "Highway Bridges on Deep Foundations," spotlighted the fact that Louisiana engineers have ample experience with the deep Mississippi mud to build a bridge if new studies show it can be financed.

Prefab building pioneer heads architecture school

The appointment of Robert W. McLaughlin, Jr., as Director of the School of Architecture at Princeton University, was announced last month by President Harold W. Dodds. He will assume his new duties next fall. He will continue in the practice of architecture as a member of the firm of Holden, McLaughlin & Associates, New York City.

McLaughlin is the holder of about 30 patents for improvements in building construction, and has been the architect for more than 30,000 housing units. He is a pioneer in prefabricating housing and the founder of the American Houses, Inc. In 1940 he established a research laboratory at Bedford Village, N. Y., for the continuing study of building techniques. At this laboratory many of the widely-used war-time buildings were developed—such as demountable housing, air-borne hospitals, and barracks.

A graduate of Princeton in 1921, he received his M.F.A. degree there in 1926 and then spent a year as a Procter traveling fellow in Italy, France, and England. He began the practice of architecture in 1928. He was a founding partner in his present firm in 1930.

He designed Armstrong Court, prize-winning housing project in Greenwich, Conn.

He is a member of the American Institute of Architects, the executive committee of the Architectural League of New York and a trustee of the Beaux Arts Institute of Design. He has published numerous articles and monographs in professional journals.

(Continued on page 91)

The instant you let a Sound Conditioning sub-contract to your local distributor of Acousti-Celotex products, you can rest assured. Assured the job is in the best hands! Assured, in advance, of the most effective, most attractive installation possible!

You're carefree and work-free, too. For your distributor of Acousti-Celotex products shoulders personal responsibility for every detail. No headaches for you. No tampering with specifications. No fear of a messed-up job.

You can count on your local distributor of Acousti-Celotex products every time. He's a member of the world's most experienced Sound Conditioning organization, with more installations to its credit than any other. He has the trained, experienced men—the job-proved techniques—the complete line of superior, specialized acoustical products to meet every specification, requirement, building code.

GET A FREE ANALYSIS of the noise problem in any buildings you are planning without obligation. Write now for the name of your local distributor of Acousti-Celotex products. You will also receive free an informative booklet, "25 Answers to Questions on Sound Conditioning." The Celotex Corporation, Dept. Z-52, 120 S. La Salle St., Chicago 3, Ill. In Canada, Dominion Sound Equipments, Ltd., Montreal, Quebec.

Sound Conditioning is a Sound Investment...

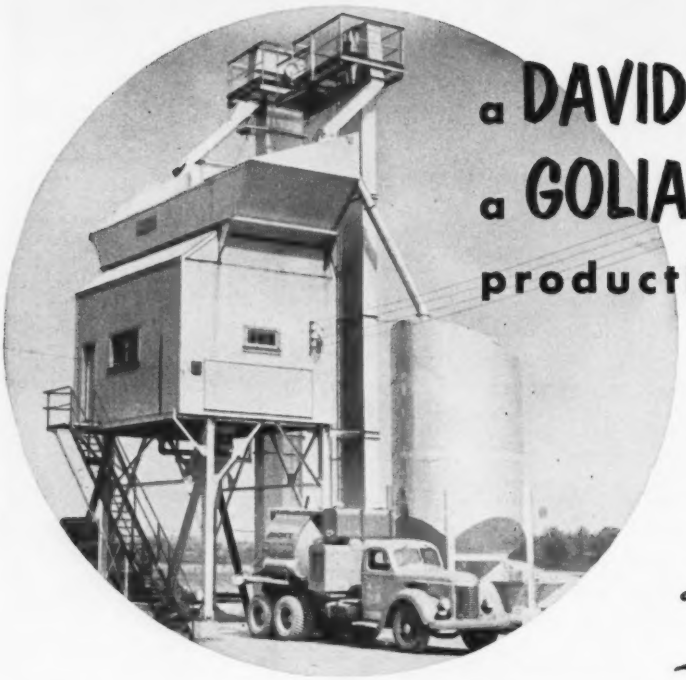
ACOUSTI-CELOTEX

TRADEMARK REGISTERED U. S. PAT. OFF.

Sound Conditioning

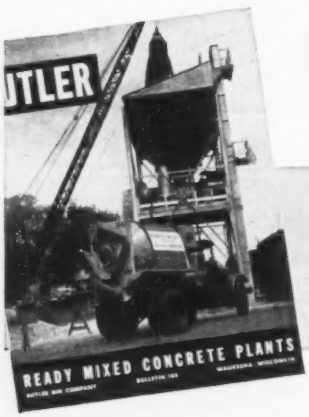
PRODUCTS FOR EVERY SOUND CONDITIONING PROBLEM

THE CELOTEX CORPORATION, 120 S. LA SALLE ST., CHICAGO 3, ILLINOIS



a DAVID in size . . . a GOLIATH in production . . .

Remarkable portability **is the keynote of this BUTLER Ready Mixed Concrete Plant. The 85 yard 4 compartment bin ships in one piece. Legs and bracing, when knocked down, complete a load for one flat car or low-bed trailer. A second load is made up of elevator, batchers and one-piece overflow cement bin. Erection is quick and easy with a crane and 3 men.**



A number of portable BUTLER Ready Mixed Plants as well as many installations of BUTLER *engineered design* are shown in Butler Bulletin 185. Write for your copy today.

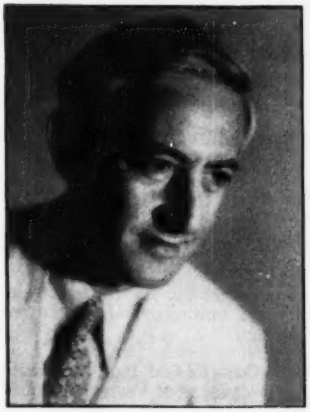
Portability **makes location at your job site practical; eliminates a large investment in costly truck-mixers. And with well co-ordinated delivery of materials either to crane, belt conveyor or elevator — production will be equal to the usual Goliath-like plant.**

As a permanent installation **in small communities — or as multiple unit installations strategically located in and around metropolitan areas, the plant's versatility in production and the low investment required means lower cost per cubic yard and a correspondingly greater profit.**

BUTLER BIN CO.

947 Blackstone Ave.
WAUKESHA, WIS.

Men and jobs . . .



Extra service honor awarded to engineer

For "distinguished service outside the line of duty," Abel Wolman, professor of sanitary engineering at Johns Hopkins University, has been named first recipient of the Harry E. Jordan Achievement award.

The award, first established last year by the American Water Works Association, to honor its executive secretary, Harry E. Jordan, is the highest honor conferred by AWWA.

Wolman was cited for his service to the Republic of Israel in planning the development of water resources for that nation. The citation recalled his voluntary tour of study and consultation in Israel in 1950, establishing the basis for his technical advice to Israeli leaders.

A Hopkins graduate, Wolman has taught at the universities of Southern California, Harvard, Princeton and California. In 1922, he became chief engineer in the Maryland State Department of Health.

Since that time, he has served as consultant to 11 state governments and many cities and has been consulting engineer to the Tennessee Valley Authority. He has been professor of sanitary engineering at Hopkins since 1937.

In 1948, as a member of the Atomic Energy Commission's reactor safety committee, Wolman aided the selection of site for the commission's proposed reactor proving ground.

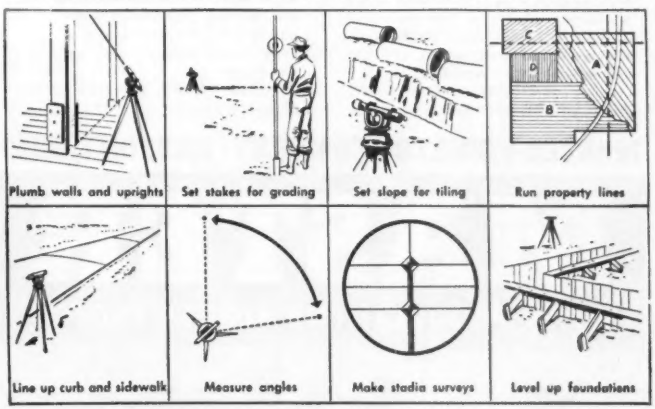
Wolman will receive the Jordan award at AWWA's annual convention in Kansas City, Mo., next week. At that time, Charles H. Capen (see p. 73) will assume the presidency of the association. Morris Cunningham has been named new vice president.

White Universal Level-Transit . . .

the most versatile instrument you can own!

Yes, the White "Universal" Level-Transit is the most practical, complete instrument on the market. Now available in a new improved model — the No. 3000 — with internal focusing, coated optics, guarded vertical arc. In fact, every feature to assure you lifetime durability and accuracy. And the price is *only $185**, complete with tripod. See your dealer, or write DAVID WHITE COMPANY, 315 W. Court St., Milwaukee 12, Wis.

INDISPENSABLE FOR THESE JOBS—AND MANY MORE—



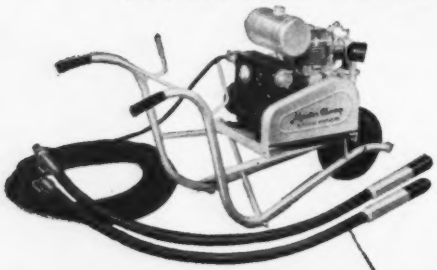
*Price subject to change without notice.

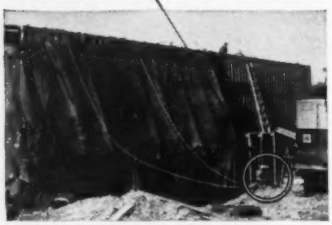
We offer the most expert REPAIR SERVICE on all makes, all types of instruments.

DAVID WHITE COMPANY

7196

THE "Master Champ" HYCYCLE VIBRATOR





ELIMINATES FLEXIBLE SHAFT AND PROVIDES VIBRATION ANYWHERE WITHIN 300 FEET

★ HIGHSPEED VIBRATOR 10,300 RPM. NO EXCESSIVE HEATING DURING NORMAL OPERATION

★ 2 SINGLE PHASE OUTLETS FOR 1200 WATTS LIGHTING

★ THOROUGHLY TESTED

★ COMPACT, LIGHT WEIGHT, VERY PORTABLE. WEIGHS ONLY 172 LBS.

★ WATER TIGHT CONNECTIONS

★ EASILY ACCESSIBLE AND REPLACEABLE FUSES

This new MASTER power unit is really the CHAMP of portable hycycle vibrators . . . it moves easily from place to place on the job as it weighs only 172 pounds. It operates TWO Master Model HV-8 Hycycle Vibrators or 1200 watts of light . . . or one vibrator and 600 watts of light. And best of all . . . IT PROVIDES VIBRATION ANYWHERE WITHIN 300 FEET of the power unit.

The MASTER CHAMP is powered by a 4/4 H.P. Wisconsin gasoline single cylinder air-cooled engine at 3200 R.P.M. The vibrating unit provides high speed vibration at 10,300 R.P.M. Conductor cables and operating vibrator cables are available in various lengths.

WRITE TODAY STATING YOUR REQUIREMENTS.

MASTER VIBRATOR COMPANY • DAYTON 1, OHIO

MASTER

BETTER PRODUCTS FOR BIGGER PROFITS

Master Portable Generator Plants ½ KW to 100 KW

Master Vibratory Concrete Finishing Screed

Master Power-Blow Electric Hammer and Spade

Master Space Heaters

Master Gas or Electric Concrete Vibrators

OBITUARIES

Lewis J. Johnson, 85, professor emeritus of civil engineering at Harvard University, died at Cambridge, Mass., April 15. He joined the Harvard faculty in 1890 and retired in 1934. He took his civil engineering degree from the Lawrence Scientific School in 1888. He traveled extensively to report to the State Department on engineering construction in Europe. He was a pioneer in the idea of the city manager form of municipal government. He helped design and supervise construction of the Harvard Stadium.

Brig. Gen. Edward Burr, 92, fourth oldest graduate of West Point, died in Washington, D. C., April 15. He headed his class in 1882 and was assigned to the Army Engineer Corps. He is said to have designed and built the first steel canal gates in the U. S., on the Cascade locks, Columbia River. At one time he headed the engineering department, 1st N. Y. District of the War Department.

Ferguson Harrison, 68, a supervisor for the Washington, D. C., suburban Sanitary Commission, died April 12 in Chevy Chase, Md. He worked for the sanitary commission for more than 27 years. Before that he was with the United States Geological Survey.

Matthew Patrick Zindorf, 93, construction engineer, died in Seattle, Wash., April 11. He built the Zindorf Apartments, the first reinforced concrete building in the city, and the President Apartment Hotel, the first large apartment hotel there. He had been engaged in major construction work in Seattle and in Canada since 1890. He retired only three years ago.

Samuel E. Braswell, 52, died April 12 in Ankara, Turkey. He was a civil engineer with Metcalfe, Hamilton & Grove, New York, on their projects in Turkey. He took his civil engineering degree at Georgia Tech. He went to Columbus, Ohio, in 1931 and for 10 years was with the U. S. Bureau of Public Roads.

George W. Yates, 79, a former secretary and deputy minister of the federal Department of Railways and Canals, and later of the Department of Transport of Canada, died in Ottowa April 16.

Charles B. Wegman, 60, president of the contracting firm Wegman & Co., died at Portland, Ore. Apr. 19.

PROFESSIONAL SERVICES

Cards arranged by states, cities, names

Additional cards on following pages

Polk, Powell and Hendon

Engineers—Consultants

Harry H. Hendon—
Hugh A. Powell

Water Systems, Sewers and Sewage Treatment Plants, Steam and Hydro Plants, dams, drainage, industrial buildings, municipal planning reports, plans, estimates and construction supervision.

620 Chamber of Commerce Bldg.,
Birmingham 3, Ala.

Palmer and Baker, Inc.

Consulting Engineers—Architects

For Problems of Transportation
Subaqueous Vehicular Tunnels
Rock Tunnels
Utility Tunnels
Bridges
Grade Separations
Highways
Airports
Traffic Studies
Parking Problems
Waterfront & Harbor Structures
Complete Materials, Chemical and Soils Laboratories.

Mobile, Ala. - Houston, Tex.

Meyerdick and Nelidov

Consulting Engineers

Structural-Mechanical-Civil-Hydraulic
Fixed & Movable Dams-Flood Control
Power-Water Supply-Irrigation
Drainage-Navigation

525 Market St. Underwood Bldg.
San Francisco, Calif. or
P.O. Box 789, Roseville, Calif.

John S. Cotton

Consulting Engineer

Hydroelectric, water supply, irrigation, and multiple purpose projects; flood and erosion control; river basin development planning; dams and their foundations; tunnels; marine structures; valuations; rates.
28 Brookside Dr., San Anselmo, Calif.

International Engineering Company, Inc.

ENGINEERS

Investigations - Reports - Design
Procurement - Field Engineering
Domestic and Foreign
74 New Montgomery St.,
San Francisco 3, California

Heron Engineering Co.

Chemical, Mining, Industrial and Hydraulic Plants, Irrigation, Water Supply, Power and Sewerage Systems. Large Rockfill Dams. Airports, Oil, Gas and Water Pipe Lines.
2000 So. Acoma, Denver 10, Colorado
Chama, New Mexico

Duval Engineering & Contracting Co.

General Contractors

FOUNDATION BORINGS
For Engineers and Architects.

Jacksonville, Florida

Rader Engineering Co.

Water Works, Sewers, Refuse Disposal, Ports, Harbors, Flood Control, Bridges, Tunnels, Highways, Airports, Traffic, Foundations, Buildings, Reports, Investigations, Consultations

1615 duPont Building Miami, Florida

Law-Barrow-Agee Laboratories, Inc.

Soils Engineers & Consultants

Soil Testing—Soil Boring—Rock Drilling—Load Testing—Field Control —Engineering Studies—Chemical Analysis—Physical Testing
Box 1358 Atlanta 1, Ga.
Serving the entire South

Patchen & Zimmerman

Engineers

Construction Plant, Cofferdams, Structures, Industrial Plants, Dams, Sewerage and Sewage Treatment. Water Supply and Treatment. Supervision, Surveys, Reports.

Augusta, Ga. Anniston, Ala.

Consoer, Townsend & Associates

Water Supply, Sewerage, Flood Control & Drainage, Bridges, Express Highways, Paving, Power Plants, Appraisals, Reports, Traffic Studies, Airports, Gas & Electric Transmission Lines.
351 East Ohio St., Chicago 11, Illinois

E. J. Albrecht Company

Engineers—Contractors

Steel, chemical and power plants, Dams, flood control projects, railroads, Bridges, tunnels, heavy excavation.

2626 West 26th Street, Chicago 8

Alvord, Burdick & Howson

Charles B. Burdick
Louis B. Howson Donald H. Maxwell

Consulting Engineers

Water Works	Sewerage
Water Purification	Sewage Treatment
Flood Relief	Power Generation
Drainage	Appraisals

Room 1401
20 North Wacker Drive, Chicago

De Leuw, Cather & Company

CONSULTING ENGINEERS

Transportation, Public Transit and Traffic Problems

Industrial Plants	Grade Separations
Railroads	Expressways
Subways	Tunnels
Power Plants	Municipal Works

150 North Wacker Drive
Chicago 6, Ill.

79 McAllister Street
San Francisco 2, Calif.

Greeley and Hansen

Engineers

Water Supply, Water Purification
Sewerage, Sewage Treatment
Flood Control, Drainage, Refuse Disposal
220 S. State Street, Chicago 4

Hazelet & Erdal

CONSULTING ENGINEERS

Fixed Bridges, Movable Bridges, Industrial Plants, Expressways, Airports, Dams

Monadnock Block, Chicago 4, Ill.
Dixie Terminal Bldg., Cincinnati 2, O.
Commerce Bldg., Louisville 2, Ky.

Pioneer Service & Engineering Co.

Consulting and Design Engineers
Operations - - - Purchasing
Steam - - Hydraulic - - Gas
Public Utilities - - Industrials
231 So. La Salle St. Chicago 4

Sargent & Lundy

ENGINEERS

Steam and Electric Plants
Utilities—Industrials
Studies—Reports—Design
Supervision
Chicago

Soil Testing Services, Inc.

Theo. W. Van Zelst Carl A. Metz
John P. Gnaedinger

Soil Borings	Rock Coring
Engineering Testing of Soils	
Soil & Foundation Reports	

4520 W. North Ave. Chicago 39

Wight and Company

Consulting Engineers

Airfields — Municipal Improvements
Sewage Disposal — Pavements — Drainage Surveys
1008 Curtiss St. Downers Grove, Ill.

Jenkins, Merchant & Nankivil

Consulting Engineers

Municipal Improvements Sewerage
Power Development Water Systems
Traffic Surveys Industrial Plants
Flood Control Recreational Facilities
Airports Investigations and Reports
305 E. Miller St., Springfield, Ill.

Chas. W. Cole & Son

Sewerage, Sewage Treatment, Industrial Wastes, Water Supply, Water Treatment, Airports- Industrial Buildings.
Chas. W. Cole, Sr. Chas. W. Cole, Jr.
Ralph J. Bushee. M. J. McErlain

228 W. LaSalle, South Bend, Ind.

Stanley Engineering Company, *Consulting Engineers*

Airports - Drainage - Electric Power
Flood Control - Industrial - Rate Studies - Sewerage - Valuations - Water Works
Hershey Building. Muscatine, Ia.

Whitman, Requardt and Associates

Engineers — Consultants

Civil — Sanitary — Structural
Mechanical — Electrical
Reports, Plans, Supervision, Appraisals
1304 St. Paul Street
Baltimore 2, Maryland

Chas. T. Main, Inc.

Engineers

Design and Supervision of Construction for Industrial Plants
Electrical, Steam and Hydraulic Engineering
Investigations, Reports and Appraisals
Chamber of Commerce Bldg.
80 Federal St., Boston, Mass.

Metcalf & Eddy

ENGINEERS

Investigations Reports Design
Supervision of Construction and Operation
Management Valuation Laboratory

1300 Statler Building, Boston 16

Philip B. Streander and Affiliates

Consulting Sanitary Engineers

Water Supply, Treatment, Distribution
Sewage, Sewage Treatment
Plans, Supervision, Reports
132 Nassau St. New York 7, N. Y.
683 Atlantic Ave. Boston 11, Mass.

Faulkner & Orpin

Engineering Consultants

Civil, Mechanical and Electrical
Market Consultants, Technical Writing and Sewerage and Water

80 K Street Kings Terminal
South Boston 27, Mass. SO. 8-2903

Black & Veatch

Consulting Engineers

Water - Sewage - Electricity - Industry

Reports, Design, Supervision of Construction, Investigations, Valuation and Rates.

4706 Broadway, Kansas City 2, Mo.

Burns & McDonnell

Consulting and Designing Engineers

P. O. Box 7088, Kansas City, 2, Mo.
1404 E. 9th St., Cleveland, 14, Ohio

Harrington & Cortelyou

Consulting Engineers

Frank M. Cortelyou
E. M. Newman F. M. Cortelyou, Jr.
Movable and Fixed Bridges of All Types, Foundations, and Related Structures.
1004 Baltimore Kansas City 6, Mo.

Russell and Axon

Consulting Engineers

Civil — Sanitary — Structural
Industrial — Electrical
Rate Investigations

408 Olive St. St. Louis 2, Mo.
Municipal Airport Daytona Beach, Fla.

Sverdrup & Parcel, Inc.

Consulting Engineers

Bridges, Structures and Reports, Industrial and Power Plant Engineering.

Syndicate Trust Bldg., St. Louis 1, Mo.
210 Bush St., San Francisco 4, Calif.

William J. Wenzel

Consulting Engineer

Great Falls, Montana

Developing the Great Northwest

Edwards, Kelcey & Beck

Reports, Design Supervision, Expressways, Port & Harbor Works, Terminals, Tunnels, Bridges, Water Supply, Industrial Plants, Traffic and Management Studies.

3 William Street 250 Park Avenue
Newark 2, N. J. New York 17, N. Y.

W. W. Slocum & Co.

ENGINEERS

Industrial - Design - Management

National Newark Building
744 Broad St., Newark 2, N. J.

Frank E. Harley and Associates

Consulting Engineers

Design, Surveys, Plans and Construction Highways, Sewerage and Sewage Treatment, Water Supply and Purification, Municipal Problems.
Harley Bldg., 200 Godwin, Wycoff, N. J.

Benjamin L. Smith & Associates

Engineers

Investigations—Reports
Designs—Supervision—Valuations
Municipal Engineering and Public Utilities
11 North Pearl St. Albany 7, N. Y.

Lester Associates, Inc.

Designers and Manufacturers of

Training Devices — Visual Aids
Industrial Planning Models
Animated Flow Charts — Relief Maps
Brochure on Request
Hastings-on-Hudson, N. Y.
HAstings 5-4454—4828

E. Lee Heidenreich, Jr.

Consulting Engineer

Quarries	Plant Layout
Crushing Plants	Design
Milling Plants	Appraisals

75 Second Street, 9 So. Clinton St.,
Newburgh, N. Y. Chicago 6, Ill.

Ammann & Whitney

Consulting Engineers

Design — Supervision
Bridges, Buildings, Industrial Plants, Special Structures, Foundations, Airport Facilities, Expressways.
76 Ninth Avenue, New York 11, N. Y.
724 E Mason Street, Milwaukee 2, Wis.

Barker & Wheeler

Water Supply	Utility and Industrial
Sewerage	Valuations
Sewage Disposal	Reports
Power Systems	

New York City, 11 Park Place
Albany, N. Y. 36 State St.

Clinton L. Bogert Associates

Consulting Engineers

Water and Sewage Works
Refuse Disposal Industrial Wastes
Drainage Flood Control
624 Madison Ave., New York 22, N. Y.

Bowe, Albertson & Associates

Engineers

Water and Sewage Works—Industrial Wastes—Refuse Disposal—Municipal Projects—Airfields—Industrial Buildings — Reports — Designs — Estimates —Valuations—Laboratory Service.
110 William St., New York 7, N. Y.

Buck, Seifert & Jost

Consulting Engineers

(Formerly Nicholas S. Hill Associates)

Water Supply — Sewage — Hydraulic Developments, Reports and Valuations, Chemical and Biological Laboratories.
New York City, 113 E. 19th St.

PROFESSIONAL SERVICES

Cards arranged by states, cities, names

Additional cards on preceding and following pages

Francis L. Brown
Harold A. Blauvelt

CONSULTING ENGINEERS

Limited Access Highways, Parkways and Expressways
Airports, Dams, Bridges, Site Planning
Industrial Plants, Water Supply
Sewers, Sewage and Refuse Disposal
Preliminary Reports, Design and Supervision of Construction
Soils and Concrete Testing, Material Controls
Tax Maps, Surveying, Municipal Engineer Services
46 Cedar Street, New York 5, N. Y.
311 Ross Street, Pitts., Pa.
2700 Bridge Plaza South,
Long Island City 1, N. Y.

Ebasco Services Inc.

ENGINEERS
CONSTRUCTORS
BUSINESS CONSULTANTS

Design and Construction
Financial and Operating Consultation
Investigations and Reports
Consulting Engineering

Two Rector Street — New York
209 S. LaSalle Street — Chic. 4, Ill.
1604 K Street, N.W. — Wash. D. C.

Fay, Spofford & Thorndike

Engineers

Charles M. Spofford — Ralph W. Horne
John Ayer — William L. Hyland
Bion A. Bowman — Frank L. Lincoln
Carroll A. Farwell — Howard J. Williams

Bridges and Industrial Plants
Water Supply and Sewerage Works
Port and Terminal Works — Airports

Valuations, Investigations, Designs, Supervision of Construction.

11 Beacon St., Boston, Mass.
420 Lexington Ave., N. Y.
(Graybar Bldg.)

The Fraser-Brace Companies

Design Engineers and Constructors

Electro-smelting & Refining
Chemical & Process Industries
Industrial Plants—Pulp & Paper Mills
Dams & Hydro-electric Developments
Heavy Foundations—Port Facilities

10 E 40 St — 360 St James St W
New York 16 — Montreal, Can.

Freyssinet Company, Inc.

Prestressed concrete structures:

Industrial Buildings
Bridges
Waterfront & Harbor Structures
Storage Tanks
Underpinnings

Estimates, tests, reports, design and supervision

57 William Street, New York 5, N. Y.

Hardesty & Hanover

Consulting Engineers

Successors to Waddell & Hardesty

Bridges
Long Spans of All Types
Movable—Lift, Bascule and Swing
Hanover Skew Bascule
Steel and Concrete Spans
Grade Crossing Eliminations

Other Structures
Foundations
Supervision, Reports, Appraisals

101 Park Avenue, New York 17, N. Y.

Frederic R. Harris, Inc.

CONSULTING ENGINEERS

F. H. Dechant, E. J. Quirin,
E. H. Harlow

Harbors, Piers & Bulkheads, Drydocks,
Foundations, Soil Mechanics,
Sanitary & Industrial Waste Disposal,
Water Supply, Flood Control,
Airports, Highways, Bridges,
Power, Industrial Plants, Buildings

27 William Street — New York
3 William Street — Newark
Fidelity Phila. Trust Bldg. — Philadelphia
Ferry Bldg. — San Francisco

Hazen and Sawyer

Engineers

Richard Hazen — Alfred W. Sawyer

Municipal and Industrial Water Supply
Purification and Distribution, Sewage Works and Waste Disposal
Investigations, Design, Supervision of Construction and Operation

110 East 42nd St., New York 17, N. Y.

Howard, Needles, Tammen & Bergendoff

Consulting Engineers

Bridges and Structures

New York, N. Y., 55 Liberty St.
Kansas City, Mo., 921 Walnut St.

Knappen-Tippetts-Abbett-McCarthy

Engineers

Ports, Harbors, Flood Control, Power, Dams, Bridges, Tunnels, Highways, Subways, Airports, Traffic, Foundations, Water Supply, Sewerage, Reports, Design, Supervision, Consultation.

62 West 47th Street, New York City

Malcolm Pirnie Engineers

Civil & Sanitary Engineers

Malcolm Pirnie — Ernest W. Whitlock
G. G. Werner, Jr.

Investigations, Reports, Plans, Supervision of Construction and Operations.
Appraisals and Rates

25 W. 43rd St., New York 18, N. Y.

Modjeski and Masters

Consulting Engineers

Design, Supervision, Reports, Inspection and Investigations, of Bridges, Structures, and Foundations.

535 Fifth Ave. — State Street Bldg.
New York, N. Y. — Harrisburg, Penna.

Moran, Proctor Mueser & Rutledge

Consulting Engineers

Foundations for Buildings, Bridges and Dams; Tunnels, Bulkheads, Marine Structures; Soil Studies and Tests; Reports, design and supervision.

New York 17, N. Y., 420 Lexington Ave.

PARDO, PROCTOR, FREEMAN & MUESER
Ap. Corrfos 614 — Caracas, Venezuela

Parsons, Brinckerhoff, Hall & Macdonald

ENGINEERS

Airports, Bridges, Tunnels, Highways, Traffic and Transportation Reports, Subways, Foundations, Harbor Works, Valuations, Power Developments, Industrial Buildings, Dams, Sewerage, Water Supply.

51 Broadway, New York 6, N. Y.

The Pitometer Company

Engineers

Water Waste Surveys
Trunk Main Surveys
Water Distribution Studies
Water Measurements & Special Hydraulic Investigations

New York, 50 Church St.

Alexander Potter Associates

Consulting Engineers

Water Works, Sewerage, Industrial Waste, Hydraulic Works, Reports, Designs, Appraisals.

50 Church St., New York, N. Y.

Clyde Potts Assoc.

Weston Gavett-Stanley N. Williams

Consulting Sanitary Engineers

Sewerage and Sewage Disposal
Water Works and Water Supply
Valuations and Appraisals

30 Church Street, New York 7

Sanderson & Porter

Engineers and Constructors

New York • Chicago • San Francisco

Scheidenhelm, F. W.

Consulting Engineer

Hydraulic Engineering; Hydro-electric Development; Water Supply; Flood Control; Engineering Problems relating to Water Rights and Water Power Law; Appraisals. 50 Church Street, New York 7, N. Y.

Seelye Stevenson Value & Knecht

Consulting Engineers

MANUFACTURING PLANTS
Plans, Specifications, Field Supervision, Reports, Valuation.

HEAVY ENGINEERING
Airports, Paving, Bridges, Stadia, Dams, Water Supply, Sanitation, Tunnels, Piers, Harbors, Industrial Waste Disposal.

STRUCTURAL
Skeleton Buildings, Foundations, Soil Studies, Concrete Control, Underpinning.

MECHANICAL - ELECTRICAL
Steam and Electric Generating Plants, Heating, Air-conditioning, Refrigeration.

101 Park Ave. — New York 17, N. Y.

Severud-Elstad-Krueger

Consulting Engineers

Structural Design - Supervision
Reports - Buildings - Airports
Special Structures

415 Lexington Avenue
New York 17, N. Y.

Singstad & Baillie

Consulting Engineers

Ole Singstad — David G. Baillie, Jr.

Tunnels, Subways, Highways
Foundations, Parking Garages

24 State St. — New York 4, N. Y.

Frederick Snare Corporation

Engineers—Contractors

Harbor Works, Bridges, Power Plants, Dams, Docks and Terminals.
Difficult and Unusual Foundations A Specialty.

233 Broadway, New York City 7

Havana, Cuba — Lima, Peru
Bogota, Colombia, Caracas, Venezuela,
San Juan, Puerto Rico, Guayaquil, Ecuador.

D. B. Steinman

Consulting Engineer

BRIDGES
Design, Construction,
Strengthening, Investigations,
Reports, Advisory Service

117 Liberty St., New York 6, N. Y.

Taylor, Henry W.

Water Supply, Sewerage
Garbage Disposal, Incineration
Industrial Waste Disposal
Hydraulic Developments

11 Park Place, New York City

The J. G. White Engineering Corporation

Design—Construction
Reports—Appraisals

80 Broad Street, New York 4

Schuerman & Frost

Engineers

Buildings and structures, heating and ventilating, water supply, sewerage, appraisals, design, supervision, surveying.

54 Market Street, Poughkeepsie, N. Y.

Keis & Holroyd

Consulting Engineers

Formerly Solomon & Keis
Since 1906
Water Supply, Sewage Disposal, Garbage & Refuse Incineration, Industrial Buildings

Troy, N. Y. — Ft. Lauderdale, Fla.

Gustave M. Goldsmith

Consulting Engineer

General Structures
Plant Layout
Design — Investigation — Quantity Surveys

1734 Bella Vista, Cincinnati 37, Ohio

The Austin Company

Design and Construction

Manufacturing and Process Plants
Airports & Air Transport Buildings
Railroad Terminals and Facilities
Power Plants—Industrial & Institutional
Industrial Office Buildings and Laboratories

Reports and Plant Location Surveys

New York — CLEVELAND — Los Angeles
Chicago — Houston — Oakland
Detroit — Seattle

Havens and Emerson

W. L. Havens — C. A. Emerson
A. A. Burger — F. C. Tolles — F. W. Jones
W. L. Leach — H. H. Mosier — J. W. Avery

CONSULTING ENGINEERS
Water, Sewerage, Garbage, Industrial Wastes, Valuations—Laboratories

Leader Bldg. — Woolworth Bldg.
Cleveland 14 — New York 7

Burgess & Niple

Civil and Sanitary Engineers
Consultants since 1908

Water supply, treatment and distribution
Sewage and industrial wastes disposal
Investigations, reports, appraisals, rates
Plant operation, laboratory, plans and specifications.

584 E. Broad St. — Columbus 15, Ohio

Jones, Henry & Schoonmaker

(formerly Jones & Henry)

Consulting Sanitary Engineers

Water Works, Sewerage & Treatment
Waste Disposal
Security Building — Toledo 4, Ohio

Toledo Testing Laboratory

Engineers—Chemists

Inspection — Tests
Research — Development
Concrete - Asphalt - Soils - Ceramics
Foundation Investigation
Borings — Diamond Drilling
Load Tests

1810 North 12th St. — Toledo 2, Ohio

Glancy & Carle

Engineers

Steel & Concrete Structures
Industrial, Commercial Buildings
Design, Supervision, Reports
1506 Market Street, Youngstown, Ohio

Benham Engineering Co.

ENGINEERS

Webster L. Benham — David B. Benham
M. Am. Soc. C. E.

Water Supply & Purification, Sewerage, Sewage Disposal, Electric Light & Power, Roads, Drainage

Am. National Bldg., Oklahoma City, Okla.

Loedding Engineering Co., Inc.

Consulting Engineers

Design and Detail
Industrial and Commercial Planning
Bridges, Material Handling
Structures of all Types
Reinforced Concrete and Foundations

500 Merchant St., Ambridge, Penna.

PROFESSIONAL SERVICES

Cards arranged by states, cities, names

Additional cards on preceding pages

Capitol Engineering Corporation
Engineers—Constructors—Management
Bridges Dams
Planning Airports
Sewage Systems Water Works
Design and Surveys Roads & Streets
Executive Offices Dillsburg, Penna.

Gannett Fleming Corddry & Carpenter, Inc.
ENGINEERS
Water Works, Sewage, Industrial Wastes & Garbage Disposal — Roads, Airports, Bridges & Flood Control, City Planning, Traffic & Parking, Appraisals, Investigations & Reports.
Harrisburg, Pa.
Branch Offices
Scranton, Pa. Pittsburgh, Pa.
Medellin, Colombia, S. A.
Daytona Beach, Fla.
Havana, Cuba

Myers-Richardson Associates
Consulting Engineers
Power Plants, Industrial Buildings and Facilities, Municipal Planning, Water, Sewage and Industrial Waste Problems, Investigation and Reports, Construction Supervision.
11 E. Airy St. Norristown, Pa.

Aero Service Corporation
Photogrammetric Engineers
Aerial Topographic Maps
Precise Photo Mosaics
Plastic Relief Models
236 E. Courtland St.,
Philadelphia 20, Pa.

Albright & Friel, Inc.
Consulting Engineers
Water, Sewage and Industrial Wastes Problems, Airfields, Refuse Incinerators, Dams, Power Plants, Flood Control, Industrial Buildings, City Planning, Reports Appraisals and Rates, Laboratory.
121 So. Broad St., Philadelphia 7, Pa.

Day & Zimmermann, Inc.
Engineers
Designs, Construction, Valuations Reports and Management
Public Utilities and Industrials
New York Philadelphia Chicago

Frederick H. Dechant
Consulting Engineer
Chairman of the Board,
Frederic R. Harris Inc.
Water Works, Industrial Wastes, Sewerage, Recovery Processes, Hydraulic Works, Gas Plants
Philadelphia: Fidelity Phila. Trust Bldg. New York: 27 William St.

Fridy - Gauker - Truscott & Fridy
Architects & Engineers
Water . Sewerage . Industrial Waste Incineration . Power & Distribution Airport . Building . Town Planning
1321 Arch Street . Philadelphia 7, Pa.

G. G. Greulich
Consulting Engineer
Investigations, Reports, Advice, Pile Foundations, Sheet Piling, Cofferdams, Bulkheads, Piers, Bridge Decks, Bank Vaults.
1346 Connecticut NW 778 Osage Rd.
Washington 6, D. C. Pittsburgh, Pa.

Hunting, Larsen & Dunnells, *Engineers*
Industrial Plants—Warehouses, Office and Commercial Buildings, Steel and Reinforced Concrete. Design and Supervision. Reports.
1150 Century Bldg., Pittsburgh, Pa.

Peter F. Loftus Corporation
Engineering and Architectural Consultants
Established 1923
Power Plant and Industrial Design, Reports, and Consultation
Pittsburgh 22, Pennsylvania

Morris Knowles Inc.
Engineers
Water Supply and Purification, Sewerage and Sewage Disposal, Valuations, Laboratory, City Planning.
Pittsburgh, Pa.

Gilbert Associates, Inc.
Engineers and Consultants
Design and Supervision of Steam, Hydro, Water Supply, Sewage Disposal, Diesel Plants and Airports, Valuations, Laboratory
Reading, Pa. 412 Washington St.
New York 61 Broadway
Houston Oil & Gas Building
Washington, D. C. 1417 K St., N. W.

Michael Baker, Jr., Inc.
The BAKER ENGINEERS, Civil Engineers, Planners, and Surveyors. Municipal Engineers, Airport Design, Highway Design, Sewage Disposal systems, Water Works Design and Operation , City Planners, All Surveys.
Home Office: Rochester, Pa., Branch Offices: Jackson, Miss., Harrisburg, Pa.

Myers & Noyes & Associates
Consulting Engineers
Water Supply, Sewage, Flood Control, Shore Protection, Irrigation and Reclamation, Reports and Valuations
2204 Tower Petroleum Bldg., Dallas, Texas
330 Wilson Building
Corpus Christi, Texas

Lockwood & Andrews
Consulting Engineers
Airports, Paving, Industrial Plants, Drainage & Sewerage, Site Locations, Soils & Foundations, Water Supply, Structures, Harbor Works, Valuations, Reports — Design — Supervision
Union Nat'l Bank Bldg., Houston, Tex.

The Foundation Engineering Company of Puerto Rico
Consulting Engineers
Foundation and Soil Mechanics Investigations, Laboratory analyses, reports and recommendations, design of structures, Supervision.
P. O. Box 821, San Juan, Puerto Rico

Hutchings & Milani, Ltd.
Engineers & Constructors
Industrial - Roads - Power Plants - Dams - Tunnels - Harbor Works - Foundations - Hotels
CARIBBEAN - WEST INDIES - SOUTH AMERICA
BERMUDA-CARIBBEAN CONSULTANTS, LTD.
Architects & Engineers.
Design - Reports - Investigations
L. C. Milani, ASCE; C. W. Abbott, R.I.B.A.; N. J. Seneser, A.I.A.; P. Collet; T. F. Carr; H. J. Williams; S. H. Pace; W. Weir.
BOTH HEAD OFFICES AT HAMILTON, BERMUDA.

Atlantic, Gulf and Pacific Company of Manila
Engineers
Design - Construction
Inquiries invited for work in the Philippines and Far East.
P. O. Box 656, Manila, Philippines
Cable Address: DREDGING Manila

Inspecting and Testing

Robert W. Hunt Company
Inspection and Tests of Engineering Materials and Equipment.
General Offices and Laboratories
175 West Jackson Blvd., Chicago 4
All Principal Cities

Johnson Soils Engineering Laboratory
Engineering design and construction tests run from MOBILE LABORATORY UNITS at construction site.
Field load bearing tests.
193 West Shore Ave., Bogota, N. J.
Bogota-Hubbard 7-4408

EMPLOYMENT

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

EARTHWORK SUPERINTENDENT Wanted—to handle 2,000,000 yard contract in New York State this Season. Permanent position. A record of previous successful performance in this type of work required. Complete summary of work performed and capacity employed requested. Salary $10,000 a year. P-4068, Engineering News-Record.

ENGINEER OF Sanitation, 35-50, responsible administrative engineering work in Health and Sanitation Division, Public Works Dept. Salary $5512-$6552 per year. Complete details by writing to Director of Personnel, Municipal Building, 550 Main St., Hartford, Conn.

ENGINEERS WANTED for Highway and Bridge Design work in Middle Atlantic State. Many permanent positions. Full information, references and salary requirements requested. P-4080, Engineering News-Record.

ESTIMATOR — PERMANENT position with long established contractor in Colorado. Must be experienced in Industrial, Commercial and General Construction. Quantity Takeoff, Pricing and Supervision. Submit full details stating education, experience, age, availability and salary expected. P-4088, Engineering News-Record.

GENERAL SUPERINTENDENT — Marine and Heavy Construction. Permanent position. Location Southern New England. P-3974, Engineering News-Record.

PERMANENT POSITIONS open to engineers experienced in highway and bridge design and layout. Excellent opportunities for Specification Writers, Chief Draftsman and Squad Leaders. Phone or write for interview—Howard, Needles, Tammen & Bergendoff, 55 Liberty St., New York 5, N. Y.

(Continued on the following page)

WANTED

COST ENGINEER

Experienced construction Cost Engineer needed for work on large steam-electric station construction projects. Location . . . south or southwest. Submit resume of experience, education and salary desired.

Box P-3629, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

WANTED

Detailers, checkers and Squad Bosses for Structural Steel or Reinforcing Steel

Experienced in making shop details for fabrication company. Excellent opportunity for qualified men. State qualifications, reference and salary desired.

ROBBERSON STEEL COMPANY
P. O. Box 1675 Oklahoma City, Oklahoma

DRAFTSMEN—Experienced Detailers on Structural Steel and Miscellaneous Iron.

State experience, qualifications and hourly rate expected in first letter.

TAYLOR & GASKIN, INC.
2210 Park Ave. Detroit 1, Mich.

Permanent Positions Open to

ENGINEERS

. . . after training at full-time pay . . . as

Consultants in Fire Protection Engineering

to top U. S. and Canadian industry. Usual pension and other benefits. Excellent opportunities; fast-growing engineering organization.

Write complete qualifications to:
P-2807, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED

MECHANICAL ENGINEER

Established consulting firm, New York area, desires Mechanical Engineer, capable supervising starting, testing, operating and correcting troubles of steam-electric station equipment. Plant betterment work involving considerable travelling. Technical education, and plant operating or betterment experience required. State education, experience and salary desired.

P-3630, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.50 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.
POSITION WANTED & INDIVIDUAL SELLING OPPORTUNITY undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.25 a line an insertion.

INFORMATION.
BOX NUMBERS count as 1 line additional in undisplayed ads.
DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:
The advertising rate is $17.10 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches —to a page. E.N.R.

NEW ADVERTISEMENTS Address New York Office, 330 W. 42nd St., N. Y. 36, for May 15th issue closing May 5th

DESIGNERS ENGINEERS

Our Liberal *Profit-Sharing Bonus* in 1951 amounted to more than a half million dollars.

We need the following type of men experienced in any phase of Blast Furnace, Steel Mill and Oil Refinery Design:

Structural Designers
Concrete Designers
Electrical Designers
Piping Designers
Electrical Engineers
Checkers

Positions available in our offices at Cleveland, Ohio—Union, New Jersey—and Tulsa, Oklahoma.

WRITE

ARTHUR G. McKEE & CO.
2300 Chester Ave., Cleveland 1, Ohio

ENGINEERS
HIGHWAY DESIGN AND CONSTRUCTION

DEPARTMENT OF PUBLIC WORKS
MONTGOMERY COUNTY, MARYLAND

Design Engineer.....$5460-$6552
Highway Designers .....to $5250
Highway Draftsmen .....to $3444
Instrumentmen .....$3444 to $4090
Rodmen .....$2982 to $3536
Materials Engineers .....to $5250
Highway Inspectors .....to $5250

Graduate Engineers without experience—$3304
With one year experience in highway field—$4137

Permanent employment, State Merit System, non-political, opportunity for advancement, paid annual and sick leave.

Write Personnel Office
Court House Rockville, Maryland

WANTED
CITY ADMINISTRATOR

City of San Carlos, Calif.
(Pop. approx. 16,000) invites applications

Salary open depending upon the experience and qualifications of man selected. City Administrator experience preferred. Contact City Clerk, City Hall, San Carlos, California, for application and qualifications. Closing date for receipt of applications closes May 31st.

POSITIONS VACANT
(Continued from preceding page)

SANITARY ENGINEER with at least 3-years experience in sewer and waterworks design and construction. Permanent position. Immediate assignment as Resident Engineer on large sewage treatment plant. Location—Michigan. Salary dependent upon experience and ability. P-4075, Engineering News-Record.

STRUCTURAL STEEL Detail Draftsmen and Checkers. All types of Structures. Vacation and bonus plan, group insurance, good working conditions. Only top quality men. Send complete written information. Samborn, Steketee and Associates, 1214 Cherry Street, Toledo 4, Ohio.

SUPERINTENDENTS OF Construction at $5450 per annum to supervise construction of a school building. 13 vacancies. Six years building construction experience including 3 years supervisory construction of large buildings required. Write, phone or call in person at Board of Education, 49 Flatbush Ave. Extension, Brooklyn, N. Y. Main 5-6120, Ext. 2.

WANTED: BRIDGE designers with office and field experience by consulting engineering firm in Pennsylvania. Give complete details and salary desired. P-4099, Engineering News-Record.

WANTED—COMPETENT Superintendent. Experienced to supervise hospital or school construction. Age 32-50. State qualifications. P-3876, Engineering News-Record.

WANTED QUALIFIED Building Construction Estimator preferably a college graduate in architectural or civil engineering. A permanent position for the right man. Please give experience, references and salary desired. Location: Texas. P-3907, Engineering News-Record.

SELLING OPPORTUNITIES OFFERED

MANUFACTURER OF Chain Link Fences desires additional Sales Outlets from Eastern Seaboard, West to Mississippi River. Write qualifications and other companies you represent. RW-3839, Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL $3,000-$25,000. This confidential service, established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

WANTED
Designing Engineers for Structural Steel or Reinforcing Steel
Experienced in design for architects and fabrication company. Excellent opportunity for qualified men. State qualifications, availability, reference and salary desired.
ROBBERSON STEEL COMPANY
P. O. Box 1675 Oklahoma City, Oklahoma

SALARIED POSITIONS $3,500—$35,000
We offer the original personal employment service (established 42 years.) Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.
R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N. Y.

POSITIONS WANTED

BRIDGE SUPERINTENDENT desires new connection. Available 30 days. 22 years experience. PW-4070, Engineering News-Record, 520 N. Michigan Ave., Chicago 11.

CIVIL ENGINEER: Contractor-Engineer representative or supervising engineer. Registered P.E. N.Y. Broad field and office experience. General construction, airports, highways, municipal and major defense projects. Reports. Twenty years on responsible assignments covering Latin America, West Indies, Pacific and Far East Area. Fluent Spanish. Prefer south or foreign. Responsible and active. Age 64. Personal interview suggested. Presently located N. Y. City. PW-3889, Engineering News-Record.

CIVIL ENGINEER graduate, advanced degree, licensed, 7 years experience hydraulics and related work, desires position eastern area. PW-3956, Engineering News-Record.

EXECUTIVE CONSTRUCTION Engineer, long experience, estimates and supervision heavy construction including foundations, dams, docks, tunnels, especially difficult subaqueous structures. PW-3497, Engineering News-Record.

GEN'L PROJECT Superintendent: Operations Manager; Directing all phases of Private & Public Construction; Major Industrial & Defense Plants; Buildings, Intricate Foundations, Hydro-Electric, Dams, Airports, Highway, R.R. Grade Separations; And related facilities. Practical experienced; Know-How; Purchasing & Sub-Contracts; References. PW-3981, Engineering News-Record.

GENERAL SUPERINTENDENT 52, with a thorough experience in that capacity, on public, commercial and industrial work, including school, hospitals, housing, power plants and government projects. Concrete and masonry specialist, with ability to minimize overhead and construction costs. References. PW-4018, Engineering News-Record.

GRADUATE CIVIL Engineer presently employed as a construction engineer would like year round employment as an assistant superintendent with a building construction firm. Capable of supervising projects rapidly and profitably. PW-4041, Engineering News-Record.

GRADUATE ELECTRICAL Engineer, Canadian, age 37, experienced in design and construction of large hydro-electric, transformer and distributing stations wants interesting work anywhere in this or industrial field. Great capacity for work. Will accept employment on trial basis if future promising. Present employment resident electrical engineer at 272,000 H.P. hydro-electric project. Available May-June, 1952. PW-4050, Engineering News-Record.

(Continued on the opposite page)

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. *Forty-first year.* *Write today.*
WILSON *Engineering Corp.*
College House Offices - HARVARD SQUARE, CAMBRIDGE, MASS.

CONSTRUCTION MANAGEMENT
Superintendents and Project Managers Training Course
All instruction by mail. Send today for sample lesson and complete details
GEO. E. DEATHERAGE & SON
5 E. Preston St. Baltimore 2, Maryland

POSITIONS WANTED

(Continued from the opposite page)

PLANT MAINT. Engr. 15 yrs. exp. civil & arch. work in field and office. Surveying. Sup'r of constr., design, maint., plant layout, piping, drainage & sewer work, safety & fire prot. Agreeable, versatile, temperate. Now on board, desire to devote all time to maint. work. Will relocate. PW-4036, Engineering News-Record.

PROJECT ENGINEER. Experienced in management of Design of substantial programs Structural, Hydraulic, Airport, Sanitary, and Industrial. Age 47, M.I.T. Degree in Civil Engineering. Registered Professional Engineer. Available for challenging project. PW-3972, Engineering News-Record.

PROJECT MANAGER-Supt. Qualified as journeyman in four Trades before becoming C.E. Lic. Professional Engineer, Michigan and New York. Extensive background in domestic and foreign work. Able to meet any prepared schedule and reduce unit costs. Reviews plans and details of all trades to assure coordination in the field. Cost plus work not preferred. English-Scotch-Dutch extraction. Desires position of responsibility commensurate with authority on Housing, Hospitals, Industrial Construction and Bridges to $15,000,000.00. Enquiries considered confidential. PW-4073, Engineering News-Record.

SUPT.—GEN. Supt. 30 years extensive experience, heavy excavations, sewers, water, mass concrete construction, bridges, highways, airports, flood control. Seeks connection with progressive well established firm. Highest reference. Salary required $1200 per month. PW-3806, Engineering News-Record.

AVAILABLE—PROFESSIONAL ENGINEER
Civil, sanitary, age 40, college graduate, 15 years U. S. and foreign experience. Design operation and maintenance of water supply sewerage and municipal engineering projects and technical administration of environmental sanitation program in one of the world's largest cities returning to U. S. in June to seek permanent executive or professional position with partnership probabilities. Salary $12,000.
PW-4086, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

CONSTRUCTION MANAGER
Capable of taking complete charge of estimating, bidding, organizing, and supervising Heavy Construction Projects—Sewage and Water Treatment Plants—Power Plants—Port Facilities, etc. Desires permanent connection with long established contractor on salary plus incentive bonus arrangement. Best of References.
PW-4056, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS WANTED

SUPERINTENDENT OR Assistant to Project Manager, 21 years construction experience. Heavy excavation, concrete, heavy foundation, sewer and drainage work. All types highway & airport work. Concrete and bituminous paving. Know men, methods, equipment and cost. Available May 1st. PW-3810, Engineering News-Record.

PART TIME WORK WANTED

ARCHITECT.—REGISTERED in N. Y. and N. J. desires part-time work. PTWW-3946, Engineering News-Record.

WORK WANTED

Jobs Wanted Any Place.
We have the equipment & experienced Divers for any Job Under-Water. Contract or day rates. Brown, 353 Williford, Memphis, Tenn.

WANTED
INDUSTRIAL PLANTS
Will arrange thru purchase of (1) Capital stock, (2) Assets, (3) Machinery and equipment, whole or in part—Personnel usually retained, strict confidence. **Box 1351** Church Street Station, New York 8, N. Y.

FOR SALE
(Additional For Sale ads on pages 98–103)

FOR SALE
(1) 50,000 GALLON STEEL WATER TOWER
Complete. Excellent condition.
Inquire
P. O. Box 21, Skaneateles, New York

FOR SALE
New Complete Shovel Attachment for Koehring Model 304.
F. H. FRIEDE
736 N. Park St. Reedsburg, Wisconsin
Phone 16

FOR SALE
CRAWLER CRANE
1-¾ Yd. Model E BUCYRUS-ERIE. 45' Boom, Diesel Engine. Ideal for large magnet work $8,000.00
CHARLES BERMAN CO.
Box 6116, Pittsburgh 12, Penna.
Phone: CEdar 1-4900

WANTED

WANTED
SLIGHTLY USED OR REBUILT CONSTRUCTION EQUIPMENT
State Price, Make, Model, Age, Condition and other details.
CONSTRUCTION EQUIPMENT EXCHANGE
120 Liberty Street
New York 6, N. Y.
Phone: CO rtlandt 7-4423

WANTED
About 140 Ton Mixing Plant with Cement Bin
14½ x 14½ Foot Horseshoe concrete tunnel forms
24" x 12' Engine Lathe
SANTUCCI CONSTRUCTION CO.
Carol and LeClaire Aves. Skokie, Ill.

WANTED
I-BEAM TRAILER
75 to 100 ton carrying capacity—with or without tractor.
W-4054, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

SURVEYING INSTRUMENTS
USED • REBUILT • SALE
RENT • REPAIRING

GURLEY
SURVEYING INSTRUMENTS
GLASS RETICLES
Replace your platinum wire or spider web reticle with the new Gurley glass reticle. Metallic filaments deposited on Gurley glass reticles are sharply defined—equally visible against either very bright or dark backgrounds.
Patterns to suit every surveying need.
W. & L. E. GURLEY
Union Plaza Troy, N. Y.

GENERAL CONTRACTOR

Having done a gross in excess of 9 million in 8 years. Due to press of other business is desirous of selling all or major part of General Contracting business dealing entirely with Oil, Utilities, and other Private industry in a territory of The Gold Coast of Texas. Equipment of standard make and in good condition. Address—

P. O. Box 2350 **CONTRACTOR** Telephone 2-3212
Corpus Christi, Texas Nite 5-8983

EXPERT REPAIRS *All Makes*
USED INSTRUMENTS *Bought and Sold*
J. H. WEIL & CO.
1325 CHERRY ST., PHILADELPHIA, PA.
GURLEY DISTRIBUTORS

TUNNEL EQUIPMENT

ELECTRIC LOCOMOTIVES, with extra batteries

3—Whitcombe, 10 Ton, 36" Gauge
6—Greenburgs, 11 Ton, 36" Gauge

MUCKING MACHINES

3—Eimco Rockershovels, Model 40
4—Conway-Muckers, Model 75

CARS

38—5 Cu. Yd. Side Dump, 36" Gauge

MISCELLANEOUS

2—Roots-Connersville Blowers, 7300 c.f.m.
3—40 K. W. Battery Charging Units
2—20 K. W. Battery Charging Units
16—Ingersoll-Rand DA 35, wet type, Drifter Drills
24—Ingersoll-Rand S 70 Motor Feed Drifters
10—Ingersoll-Rand No. 229 DJB Drill Booms
12000—lineal feet 24" Vent-Pipe, 14 Ga. Lock Joint
2—60 K. W. Diesel Generator Sets
Transformers, various sizes
Electric Cable
Electric Pumps, various sizes

Subject to Prior Sale

FRAZIER-DAVIS CONSTRUCTION CO.
1319 Macklind Ave., St. Louis 10, Mo. Sterling 1950
Grahamsville, New York, Box 153 Grahamsville 2861

FOR SALE

1—Used Caterpillar Tractor D7 with angle-dozer, 7M series.
1—Used Caterpillar Tractor D4 with angle-dozer, late model.
1—Used Allis Chalmers Tractor HD14.
2—Used Insley ½ yd. Diesel Crawler Cranes, one equipped as a Shovel, late models.
2—Used Insley ½ yd. Gas Crawler Cranes, one equipped as a Backhoe, late models.
1—Used Lorain 1¾ yd. Diesel Crane.
1—Used General 10 ton rubber tired self propelled Crane.
1—Used Bucyrus Erie 15B, Combination shovel, crane and backhoe, late model.
1—Used Link Belt Speeder model LS-40, ⅜ yd. shovel and crane.
3—Used 500 foot Ingersoll Rand Diesel Air Compressors.

All above equipment in good condition.

"Try us first, for good dependable equipment at the right price."

PHONE, WRITE OR WIRE

NATIONAL MACHINERY COMPANY
P. O. BOX 2305, NORFOLK 1, VA.
PHONE: NORFOLK 51107

Immediate Delivery

Adams 414 Diesel motor patrol. A-1 condition.

"Caterpillar" D6 W/Inside Dozer. Good Condition.

Allis-Chalmers W Patrol

1—Allis-Chalmers Model HD7W tractor w/Gar Wood bulldozer.

1—Allis-Chalmers Model B tractor with mower.

1—"Caterpillar" Model 212 motor grader.

1—Bros Model SG-55 skid mounted steam generator.

1—Allis-Chalmers Model HD10W w/Baker Hydraulic Dozer.

LeTourneau 3½ cu. yd. scraper. Very clean.

1—Novo traffic line marker.

1—Titan chain saw.

ILLINOIS ROAD EQUIPMENT CO.
1310 E. Jefferson St. Springfield, Ill.
Phone 2-7709

LIQUIDATION SALE

Real Bargains Available

1 C. S. Johnson Batch Plant including:
1 Shaker screen Assembly Comp. w/ Switch Boxes & Controls
1 Cement Scales
1 Open Control Panel
1 Water Batcher
1 Dispenser, Air Entraining
1 Set Aggregate Scales
1 Set Weighing Hoppers
2 Sets Screw Conveyors, Comp. w/ Sprocket & Chains
1 GE Motor 3 HP
1 V.S. Motor 10 HP
2 Relays
1 Dispenser, Admix for Air Entrainment
1 Motor, Elec. U. S. 10 HP
1 Lot assorted Cond. & Wiring for Batch Plant
1 Cement Unloader, Comp w/ Housings, Screws, Hoppers, LeRoi Motor
3 Valves, Control, Hydraulic
3 Concrete Buckets, Johnson, 2 C. Y. Cap.
6 I Beams, Steel, 24" x 60'
1 Generating Plant, 75 KWH w/ D13000, Cat. Motor

Great number small miscellaneous concrete tools and materials.

W. D. WILSON
Citizens Bank Building
Phone 3512
P. O. Box 390 Clovis, New Mexico

ASPHALT PLANT EQUIPMENT

Including dryers' aggregate hoppers, storage tanks, bucket conveyors, batch mixers and scales, boiler, pumps, electric motors, exhaust and dust collecting system. Will sell entire twin plant or any part. Structure also available.

ACORN IRON & SUPPLY CO.
905 N. Delaware Ave.
Philadelphia 23, Pa.

FOR SALE

1—Hough Front End Loader

Serial 9099, complete with International Diesel 4 cylinder gasoline engine, serial No. 13329-21. This machine is equipped with Goodyear and Goodrich Rubber Tires, 16 and 10 ply, and 1 yard front end loader.

Condition: excellent; looks and operates like new.

Price: $4,500.00, F.O.B. St. Louis, Missouri, subject to prior sale. Available for immediate shipment.

For further information write or call

Allied Construction Equipment Co.
4015 Forest Park Ave. St. Louis 8, Mo.
Telephone: Franklin 1818.

SHOVELS—DRAGLINES EUCLIDS

K-595 Link-Belt Dragline, with 85' boom, 2½ yd. bucket, D-17000 Caterpillar engine; hydraulic controlled. In excellent condition.

Model 2000 Manitowoc, with 60' boom, 1½ yd. bucket, Buda diesel engine. Very good condition.

37-B Bucyrus-Erie 1½ yd. Shovel, with D-13000 Caterpillar diesel engine. Good mechanical condition.

362 Marion Dragline, with 60' boom, 1½ yd. bucket, Buda diesel engine. Good condition.

2—49-FD Euclid Rear Dump Trucks, 13½ y.d. struck measure; G. M. diesel engines.

2—Side Dump Apcor Athey Wagons, 12 yd. struck measure, with Model DW-10 Caterpillar tractors, powered with Caterpillar engines; hydraulic steering and dump; air brakes; electric lights. Like new.

FRANK SWABB EQUIPMENT CO., INC.
Hazleton N'tl. Bank Bldg. Hazleton, Pa.

FOR SALE

6,500 (approx.) ¾" Richmond Tylocops, Tylags, and Washers in good condition. Price—60% of our cost.

The Arundel Corporation and L. E. Dixon Company
Box 2015, Tullahoma, Tennessee
Phone — Estill Springs 69-J

NW 6 Shovel #12760 A-1
NW 6 Shovel #13400 A-1
NW 6 Backhoe attachment complete.
D4 w/Traxson hyd. loader HT4 #7U9814.
D4 w/Cat. hyd. bulldozer.
D6 w/Traxcavator loader #9U1138.
D7 w/LeTourneau DDPCU & "A" Frame.
B.E. 10B shovel ⅜ yd. cap.
LaPlant Choate TS200 Motor Scraper.
D7N and D8N Winches.
Duoway Scoopmobile—demonstrator.
Int'l K11 tractor w/15 ton trailer.

CHAS. M. INGERSOLL
19930 Detroit Rd. Rocky River, Ohio
Edison 1-1010

FOR SALE

BULK CEMENT PLANT

Capacity 373 bbls. Purchased new October, 1949. Fully equipped. Location, Owego, N. Y.

HARRISON & BURROWES, INC.
507 Summit Ave. Jersey City, N. J.

1—MC4 LORAIN

MOTO-CRANE

85 ft Boom—Good Condition

MR. CHARLES LOBOSCO
45-50 158 St. Flushing, N. Y.
Flushing 8-8787

FOR SALE

CAT D8

With DDPCU and Dozer Blade IH Series. Good condition. $7,500.00.

H. J. KEARSE
980 Westfall Rd. Rochester, N. Y.

STEEL

Get Our Low Prices

100 Tons 8" x 36# Bearing Piles
100 Tons 10" x 42# Bearing Piles
100 Tons 12" x 53# Bearing Piles
100 Tons 8" x 31# H-Beams
100 Tons 10" x 49# H-Beams
100 Tons 12" x 65# H-Beams

We can also furnish from stock I-Beams, Channels, Angles, and Plates.

Contact us for all Structural Steel items.

ALBRO STEEL COMPANY
47-29 VAN DAM STREET
LONG ISLAND CITY 1, N. Y.
STILLWELL 4-2720 DIRECT WIRE VIA
STILLWELL 6-5448 WESTERN UNION

2—DW10 CATERPILLAR TRACTORS with 2—PD10 SIDE DUMP WAGONS

Used 700 Hours

12.00 x 20, 14-ply front tires
21.00 x 25, 20-ply tractor tires
14.00 x 20, 20-ply trailer tires

New January 1950—Excellent Condition

$30,000.00 for Both

L. B. SMITH, INC.
Camp Hill, Pa.

PART FOR SALE—PART FOR RENT

CRANES—DRAGLINES—CLAMSHELLS
Manitowoc 3500's, 60-ton capacity, fully equipped, and others.

AIR COMPRESSORS
Ingersoll Rand 600' Gyroflow Rotary Type

BUCKETS
1½—2—2½ cu. yd. Page—Owens—Williams—Blaw Knox—Rehandling and Digging

PILE HAMMERS
Vulcan #1—McKiernan-Terry S-5—11B-3

PILE DRIVERS COMPLETE

BULLDOZER—CATERPILLAR D-8.

Reply to:

Clemens Construction Company
P. O. Box No. 266, West New York, N. J.

FOR SALE

2 Yard and a quarter Dragline pullshovel and crane
2 500 C. Ft. C.P.T. with 13000 Cat Engine
3 34-27-18 E Foote Pavers
3 Trench backfillers
1 36" x 12' Trench Machine
Gas Engine for No. 3 and No. 104 Northwest
Parts for Twin City gas motors and Mack trucks

SANTUCCI CONSTRUCTION CO.
Carol and LeClaire Aves., Skokie, Ill.

LOW BED TRAILER

1 New 25-Ton Low Bed Trailer. Width 8', deck length 22', height 32½", rocker beam axle, 8 0.25 x 15 12-ply tires, air brakes, ICC lights, directional signals. $3600. F.O.B., Newark.

North Jersey Equipment Co.
Highway No. 25, Newark, N. J. Bigelow 2-2323

COMPLETE EARTHMOVING OUTFIT

Including 14" hydraulic dredge with attendant plant, 6-yard, 3-yard, 2-yard and 1½-yard draglines, scrapers, tractors and miscellaneous items, located southeast.

FS-4040, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

Order Now!

Complete LISTS are Available

LARGE STOCK GUARANTEED PERFECT CONDITION

WIRE ROPE THIMBLES
DIAM. INCHES 5/16 TO 1¼

MANILA ROPE THIMBLE
DIAM. INCHES 5/16 TO 1¾

1,000,000 FEET WIRE ROPE

¼" DIAM. to 2¾" DIAM. Both Black and Galvanized

WIRE ROPE SOCKET
DIAM. INCHES ⅜ to 2⅜

SCREW PIN CHAIN SHACKLES

⅜" to 3"

SCREW PIN ANCHOR SHACKLES

⅜" to 3"

⅜" to 3"

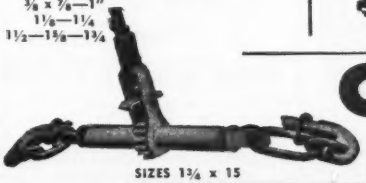
⅜" to 3"

ALL SIZES

Size ¾"

Nos. 28-33-34

ALL SIZES—OPEN & CLOSED



⅜ x ⅞—1"
1⅛—1¼
1½—1⅞—1¾

SIZES 1¾ x 15

ALL SIZES

All Inquiries Receive Immediate Attention

J. THOMAS SCOTT
INCORPORATED
784 S. FRONT STREET PHILADELPHIA 47, PA.
HOward 8-2321

FOR SALE

1—Navy steel house lighter, formerly Navy Net Tender, 111 long x 34' wide x 11' deep. Excellent condition. Dravo built 1944. Crew space for 20 men, dining room, freezing compartment with freezing unit compact, two large work rooms. Price $50,000.00. Norfolk, Va.

1—900 H.P. General Motors 12-567 Diesel Engine—744 r.p.m. Serial No. H-262-Port. Price $11,000.00. Arlington, Va.

2—100 K.W. Superior Diesel Generator Sets AC or DC GBD-8-5½x7—1200 r.p.m. Delco Generator 152 H.P. 120/240 volts—417 amps complete with switch gear. Serial Nos. 23568 and P28406. Price $3,000.00 each. Arlington, Va.

1—Steel Spud, 1" wall, 22" O.D., 55' long with point and head sheave.

1—Steel Spud 1¼" wall, 23' O.D., 55' long with point and head sheave. Both spuds in new condition, approx. wt. 10 Tons each. Price for both spuds $7,500.00. Arlington, Va.

1—Set of 6 Drum (Hoisting and Swinging) gears, shafting, bearings, etc. Manufacturers—Lambert Hoist. Price $3,000.00. Arlington, Va.

J. A. LAPORTE — **P. O. Box 309, Arlington, Virginia**

FOR SALE

6 TD24 INTERNATIONAL Tractors, 1950 Model, with/without bulldozer blades.

1 BUCKEYE FINEGRADER, practically new.

2 SEAMAN PULVIMIXERS, 1949, self-propelled.

DAVIS CONSTRUCTION CORP.
Post Office Box 278
Hicksville, New York
Hicksville 3-0022

GOVERNMENT SURPLUS

2 yd DIESEL CRANE

Very Little Service

$19450

at location—El Paso Area

P & H MODEL 750 L. C.
WITH FAIRBANKS MORSE
DIESEL ENGINE

68 FT. ALUMINUM BOOM
2 YD. BUCKET - LIGHT GENERATOR
WIDE TRACKS - AIR COMPRESSOR

100'S OF OTHER PIECES

Write for Complete Free List

REX TRAILER CO., INC.
DEPT. EN
P. O. BOX 5235 — RI. 5648
DALLAS, TEXAS

FOR SALE

2—Universal Jaw Crushers 10 x 36. Serials 27543 and 27549

1—Chicago Pneumatic Air Compressor 315 C.F. Caterpillar Diesel D-8800 Power Unit

Above located in Wyoming

1—Universal Jaw Crusher 10 x 36. Serial 27521

3—Koehring Dumptors Model W-55. Case Gasoline Power Units

1—Bucyrus-Erie Crane 1¼ Yard. GA-3 Model. Serial 11643. Powered by Wisconsin Gasoline Motor Model D-2

Above located in Wisconsin

1—Koehring Dumptor Model W-55. Case Gasoline Power Unit

1—Lima Shovel 801. Serial SL-512. Buda Diesel Power Unit

1—Ingersoll-Rand Air Compressor. 315 C.F. Serial 40D-25126 with International Diesel Power Unit.

Above located in Alabama

E. C. Schroeder Co., Inc.
McGREGOR, IOWA

FOR SALE

34-E Dual Drum Ransome Paver with 600 gal. reserve water tank. Hercules gasoline engine, good working condition. Serial #15558

2—Model LP-Le Tourneau 12-15 cu. yd. Carryall Scrapers, good condition. Serial #S 13637 and #S 13638

The Rowen-Leahy Company
40 Midland Street
Hartford, Connecticut
Telephone: Hartford 7-8227

FOR SALE

Model 180 Single Pumpcrete
1000' of pipe and fittings
For Quick Sale—$5500.00

ABERTHAW COMPANY
133 Southampton St. Boston 18, Mass.
Phone Highlands 5-6700

CRAWLER CRANE

1—P. & H. Model 700 Crawler Crane with 40 ft. boom, 18 ton lifting cap., 1¼ yd. bucket cap., gasoline oper. in good shape. New 1928.

DALTON SUPPLY CO.
Wind Gap, Pa. — Pen Argyl 384

FOR SALE

5 LaPlant Choate Motor Scrapers TS-300

Priced Right
Practically New

UNITED TRACTOR & EQUIPMENT CORP.
135 East 146 St., N. Y. 51, N. Y.
Cypress 2-0800 — *A.E.D. Member*

FOR SALE

4—Euclid Bottom Dumps—13 cu. yd. with Cummins NH 200 H.P. Engine.

1—Euclid Model 5 BV Loader.

Bottom Dumps ..... $10,000.00 ea.
Loader ..... 12,000.00 ea.

All units working—available 30 days or less. Location Southwest Missouri. Contact

Porter DeWitt Construction Co.
Poplar Bluff, Mo.
OR
Euclid Sales & Service Inc.
St. Louis, Mo. — Phone Hiland 3417

DEPENDABLE USED MACHINES

Special,—Cedar Rapids 15x36 jaw crusher; good condition; very attractive price. Come see it!

Lorain 40 shovel	Lorain 40 dragline with 30" shoes	3 yd. Dumpcrete
Lorain ½ yd. hoe	Hughes-Keenan Roustabout crane	2000 lb. frost ball
Hanson truck crane	All sizes clam and drag buckets	Phoenix 48" magnet
Galion motor grader	Gruendler 10x36 roller bearing crusher	Eagle cinder crusher
Badger 203 ditcher	½ yd. hoe attachment for Bay City 25	Case L motor

For rent,—cranes, draglines, backhoes, buckets, and all other accessories.

10002 Southwest Highway — TRACTOR & EQUIPMENT CO. — Oak Lawn, Illinois

BRIDGE FOR SALE

234 Foot Steel Truss Swing Span in good condition. As is or reerected. Approximately 200 Tons.

Gordon Walker Contractor
Bogalusa, Louisiana

FOR RENT

20-10 TON TO 25 TON CAPACITY

TRUCK CRANES

SECTIONAL BOOM LENGTHS TO 130 FEET

LIMA & P & H CRAWLER CRANES

30 TON TO 50 TON CAPACITY

SECTIONAL BOOM LENGTHS TO 175 FEET

THE ROGER SHERMAN TRANSFER CO.
EAST HARTFORD, CONN.

Branches: **SPRINGFIELD, MASS. NEW HAVEN, CONN. ALBANY, N. Y.**

CRANES

½ and ¾

Insleys—Lorains—Byers—Units—Osgood—P. & H.—Buckeye—Lima —NW 25—Linkbelt—
(As is) or reconditioned.

½ to 2 Cu. Yd.—Drag & Clamshell Buckets Wrecking 1000 Gl Trucks

THE ELLIS COMPANY
(Formerly Ellis-Novack Company)
2510 W. Empire St. Burbank, Calif.
ROckwell 9-2061

AIR COMPRESSORS
17 Diesel 315, 500, 630, 900 & 1500 Ft.
22 Elect. 676, 1080, 1302, 1730, 2300, 3178, 3865 Ft.
11 Low Pres. 743, 1080, 2200, 3000 & 6040 Ft.

CRANES — SHOVELS — DRAGLINES
7—Diesel & Steam Loco. Cranes—20, 25, 30 & 40 T.
9—25, 40, & 60 Ton Steam & Elec. Whirley Cranes.
2—41B Bucyrus 1-¼ Yd. 60' Boom Steam Crane.
40 Ton Orton Diesel Locomotive Crane.
54B Bucyrus, 80D Northwest Diesel Shovels-Drags.

TUNNEL EQUIPMENT
32—Conway, Enco & Gardner Denver Tnl. Shls.
26—Battery & Trolley Locomotives, 4, 6, 8 & 10 T.
266—Tunnel Cars, 1, 2, 4, 6 & 8 Yd. Cap.

RAILROAD CARS
164—Dump Cars 1½, 2, 3, 5, 16, 20 & 30 Yd. Cap.
96—10,000 Gal. Tank Cars—100 Box Cars.
128—40 & 50 Ton Flat Cars—68—50 Ton Gondolas.

LOCOMOTIVES
17—Diesel 100, 80, 65, 30 & 10 Ton.
42—Gasoline 35, 25, 20, 16, 10 & 8 Ton.
9—Steam, 40, 50, 80 & 100 Ton.

HOISTING ENGINES
STEAM: 14x12, 9x10, 8½x10 & 7x10.
ELECTRIC: 30, 40, 60, 80, 100, 125 & 150 H.P.

PILE HAMMERS & EXTRACTORS
9—McKiernan-Terry No. 5S, 3, 5, 6, 7, 9B3, 10B3, 8S, 11B3. Also Union No. 1.
Vulcan 800 & Vulcan #2 & 1 & 5000.

PUMPCRETE
Model 160, 190 & 180 & 200 REX Pumpcretes.

STEEL DERRICKS
2—Clyde 15 ton Stiff Leg 100 & 125' Boom.
2—Terry 25 ton, 100' Boom Guy Steel Erectors.
3—7-10 Guy 85' & 50 Ton 100'.

STEEL STORAGE TANKS
17—10,000-15,000 & 25,000 & 42,000 gal. cap.

R. C. STANHOPE, INC.
Tel: MUrrayhill 2-3075 60 E. 42 St., N. Y.

CARLYLE

INDUSTRIAL RUBBER PRODUCTS FOR EVERY PURPOSE

IMMEDIATE DELIVERY OF CONVEYOR, ELEVATOR AND TRANSMISSION BELTING — FIRE, WATER, SUCTION, AIR, STEAM AND WELDING HOSE

WHY WAIT
We have 8 to 48
RUBBER CONVEYOR BELTING

TOUGH COVERS—Heavy duty, specially compounded abrasive resistant rubber covers having high tensile strength. Thoroughly capable of withstanding the abrasive action of bulk materials. Properly vulcanized to the carcass to assure utmost performance, economically.

STRONG CARCASS — Constructed of finest quality 28 and 32 ounce tough cotton duck, properly treated and impregnated to avoid mildew from moisture and atmospheric conditions. Each ply thoroughly embedded in rubber to prevent ply separation.

FLEXIBILITY — Careful attention has been given in the construction of all belts to have the proper flexibility assuring the following desirable features; troughs easily, runs true on all idlers, gauge resistant, excellent for long and short hauls and slope installations.

Avoid delays in your production schedules!

We carry in stock for your immediate requirements, Conveyor Belting in widths from 8 inches to 48 inches.

Width	Ply	Thickness Top Cover	Thickness Bottom Cover	Type of Duck Carcass
8"	4	1/16"	1/32"	28 Oz.
10"	4	1/16"	1/32"	28 Oz.
12"	4	1/16"	1/32"	28 Oz.
14"	4	1/16"	1/32"	28 Oz.
16"	4	1/8"	1/32"	28 Oz.
18"	4	1/8"	1/32"	28 Oz.
20"	4	1/8"	1/32"	28 Oz.
20"	5	1/8"	1/32"	28 Oz.
24"	4	1/8"	1/32"	28 Oz.
24"	5	1/8"	1/32"	28 Oz.
26"	5	1/8"	1/32"	28 Oz.
30"	4	1/8"	1/16"	32 Oz.
30"	5	1/8"	1/16"	32 Oz.
30"	6	1/8"	1/16"	32 Oz.
36"	6	1/8"	1/16"	32 Oz.
42"	5	1/8"	1/16"	32 Oz.
48"	5	1/8"	1/16"	32 Oz.
48"	8	1/8"	1/16"	32 Oz.

INQUIRE FOR SIZES NOT LISTED
ELEVATOR TRANSMISSION & V-BELTING ALSO IN STOCK

All our belting made by the leading belting manufacturers.

Write for Free Booklet on Installation, Care & Maintenance of Conveyor Belting.

SEND US YOUR INQUIRIES FOR OTHER RUBBER PRODUCTS.

CARLYLE RUBBER CO., Inc.
62-66 Park Place New York 7, N. Y.
Phone: Digby 9-3810

FOR SALE

North West combination shovel and crane with 1 yd. clamshell bucket with 60 ft. crane Boom. 105 compressor truck mounted. Reasonable.

S. F. Pandolfo
3120 Main St. Hartford, Conn.
Tel. 6834 S

FOR SALE
TRACTOR-TRAILER

- **1944 lowboy Freuhauf 20 ton Trailer**
- **1941 Mack Lanova Diesel Truck**

Good Rubber - Good Condition
Fair Price

Bonwit Construction Co.
Rt. 1, Box 112-Laurel, Md.
Tel: Laurel 775-J1
OR
100 Gold Street, New York, N. Y.
Barclay 7-2857

CAT-D-7-DOZER

383 hrs since factory new, like new, fully equip. 40 Ton Low-boy. Must sell at once.

TOM FISHER
Java Center, N. Y.

TOURNADOZER

One 1950 Model Super C LeTourneau, Serial No. 2962, with Spare Tire, 1550 Actual Hours on Meter.

DEPEW PAVING CO., INC.
4955 BROADWAY DEPEW, N. Y.

REBUILT & GUARANTEED
1951 P&H 150 TC ½ yd. Motor Crane
1947 P&H 225 A ¾ yd. Crawler Shovel

EDWARD EHRBAR, INC.
29 Meserole Ave., Brooklyn 22, N. Y.
EVergreen 3-5000

---

5 Yd Steam Powered Crane
60 Ton American Revelver R-25
50 Ton Colby Gantry Electric
5 to 50 Ton Derricks
20 Ton Lorain Truck Crane MC 414
Loco Crane 25 Ton Diesel 50 Ton Steam
Asphalt Plant Cedar Rapids "B" 3000#

STONE THE CRANE MAN
1132 PRUDENTIAL BLDG. BUFFALO 2, N.Y.

TRADE WITH BAUER
BUY - SELL - TRADE
your
COMPRESSOR VACUUM PUMP STEAM BOOSTER
L.W.BAUER
265 ESSEX AVE. BLOOMFIELD N.J.

5—9FDT Euclid Bottom Dumps, 13 cu. yd. capacity, Cummins Diesel Engines. Machines are in excellent condition.

1—Caterpillar Grader, Model 112, Serial #9M890. Excellent condition.

VILBRO EQUIPMENT CO., INC.
233 North Ave., Westfield, N. J.

PUMPCRETES

Rebuilt Current Models
For Sale or Rent
CONCRETE EQUIPMENT COMPANY
312 E. Wisconsin Ave.
Milwaukee 2, Wis.

PAVING EQUIPMENT PRACTICALLY NEW
USED APPROXIMATELY NINETY DAYS FOR
45,000 SQUARE YARDS PAVING

Rex 34E double drum paver #GD229 with hydro-cycle control, standard water storage tank, 35' distributing boom, controlled door bucket with 10" clearance at end of boom, powered by Waukesha Model 145GK 6 cylinder, 116 H.P. gasoline engine #720945, complete with auxiliary water pump $24,788.00

4700 ft. Heltzel steel road forms (500 — 10' long) with 5 wedged stake pockets and 1 V-type slide lock per 10' section (without stakes) ..$1.60 per ft.

1 Jaeger type "X" diagonal screed finisher #50X017 for 10'-12' widths, set for 12' width crown, equipped with quick crown change front and rear screeds, two #32109-2 double flanged traction wheels, two #32127-1 flat rubber tired traction wheels, two extra #32110-1 cone tread traction wheels, and powered with Continental F-140 engine #19660. Now set for 12' width crown, with necessary attachments.....$5,856.00

40—Turnomatic cement boxes $3,200.00

44—Batch boards for trucks.....$800.00

OTHER PAVING EQUIPMENT

1—Cleveland form grader #141X45, powered by Hercules gasoline engine #JXC1318706—can be set 12" to 18" $1,700.00

1—Koehring longitudinal finishing machine #LF709, powered by Hercules gasoline engine—can be set minimum 9' and maximum 15' $3,000.00

1—Blaw Knox spreading machine #SA3223, powered by Continental gasoline engine #F2263035—can be set minimum 9' and maximum 15' $3,800.00

1—Buckeye fine grader powered by 1 XH-5 Hercules engine—Serial #338, Engine #1XH-5-692706—set at 12'. Can be extended to 15' but we do not have necessary attachments.$3,500.00

EXCAVATING AND GENERAL EQUIPMENT

5—1949 Ford dump trucks (F8) #98EQ25501; #98EQ244979; #98EQ27153; #98EQ27196; #98-EQ26185 .....$1,500.00 ea.

1—1944 Chevrolet passenger bus #MR12-6410, seats 30, like new $4,200.00

1 Caterpillar D-8 Tractor, hydraulic blade, Ser. #21,9679 .....$17,000.00

1—L-P LeTourneau Pan (Scraper) clean, good tires, Ser. No. 52,908LPD.....$4,625.00

1—Bucyrus-Erie 22-B Shovel, shovel front, UD-16 Motor Serial No. 51796, together with 1 set used tracks $750.00 and 1 used crane boom $750.00 included $14,000.00

4—Super-C Tournapulls with pan like new. Moved approximately 125,000 cu. yds. dirt each. Above price includes approximately $3,000.00—in new parts .....$8,000.00 ea.

1—C90 Autocar and 20-ton equipment trailer both in excellent condition $3,000.00

2—C-11 Tournomatic Tournapulls like new. Moved approximately 300,000 cu yds. dirt each. Above price includes approximately $7,000.00 in extra tires .....$15,000.00 ea.

1—Caterpillar grader Model No. 11, Ser #6K621 .....$2,000.00

1—¾-yard Lorain Truck crane on 10-wheel Mack, Ser. No. 468045-10072 .....$6,800.00

All Prices F.O.B. Our Yard
At BAILEY'S CROSSROADS, VIRGINIA
(Near Washington, D. C.)

ALL ITEMS SUBJECT TO PRIOR SALE

All Items Available for Inspection at Our Yard
Commission of 5% will be paid
for All Sales Consummated

Payne-Oliver Concrete Co., Inc.
901 Leesburg Pike
Falls Church, Virginia

NEW CONVEYOR IDLERS
60 E. 42nd St., New York 17, N. Y.

2000—36 In. Troughing 6" Rolls
1400—42 In. Troughing 6" Rolls
100—60 In. Troughing 6" Rolls
600—36 In. Return 5" Rolls
450—42 In. Return 5" Rolls
25—60 In. Return 5" Rolls
All above fitted Ball Bearings

30 COMPLETE NEW TERMINAL SETS WITH LAGGED HEAD PULLEYS
NEW RUBBER CONVEYOR BELTS
8000 Ft. 36 In. 42 In. 60 In.
NEW VIBRATING SCREENS
10 Allis-Chalmers 6' x 14'—2 Deck Rypl-Flow with Car Loads 1½ in. to 4 in. Square opening extra Screen.
NEW MERRICK WEIGHTOMETERS
10 Type E for 36 in. Belt
NEW DORR RAKE CLASSIFIERS
4—7 ft. x 30 ft. Type DSFX
CRUSHERS
42 x 48 AC Superior Jaw
48 in. Telsmith Gyrasphere
5½ Symons Short Head Cone
24 x 36 Farrell Jaw

R. C. STANHOPE, INC.
60 E. 42nd St. New York 17, N. Y.

FOR SALE

1 Used Model E2000 Iowa Manufacturing Company Blacktop plant, including 2,000# pugmill mixer, 60" x 24' standard dryer, bins, 100 h.p. locomotive type boiler, asphalt pump, gasoline engine power unit, but no storage bins.

Location: approximately 150 miles out of St. Louis.

Price: Reasonable

For information write or telephone:

Allied Construction Equipment Co.
4015 Forest Park Ave., St. Louis, Mo.
Franklin 1818

FOR SALE
Model 160 PUMPCRETE MACHINE

Model 160 single Pumpcrete with pneumatic mount (rubber tires), gasoline powered, with concrete hopper, remixer and auxiliary equipment. Includes 381 ft. 6" diameter straight pipe in various lengths: 3—90 degree elbows, 3—45 degree elbows, 4—22½ degree elbows, a washout hose, a distributing spout and hanger, plus miscellaneous parts, Go-Devils, etc. Equipment new 1949 and used for approximately 2500 cu. yds. of concrete. Now located Milford, N. H. Available immediately. Wire, phone or write:

CLAYTON W. CHASE, General Contr.
5 West St., Milford, N. H.

---

1 Steam Locomotive 040-25 ton Standard gauge.
1 Steam Shovel Type 7 Marion with crane boom.

Both in good condition.

Troy Slag Products Co., Inc.
Foot of Monroe St. Troy, N. Y.

DREADNAUGHT FORMS

12,000 lin. ft. 8" Blaw Knox Dreadnaught Forms without pins. Good condition, 90¢ per foot.

ARUTE BROS.
560 S. Main St., New Britain, Conn.

FOR SALE
1 CATERPILLAR # 12 Grader
2 Years Old — 8T Model
A-1 Condition — Looks like new

P. O. Box #95 Perkasie, Pa.
Phone 2087

PROTECT EQUIPMENT

U.S.A. Air Corps
LIGHT BROWN
(CORONADO TAN)
ENAMEL
REGULAR $30. VALUE
5 FULL GALLONS FOR ONLY **$3.95**

SHIPPING WEIGHT 68 LBS. F.O.B. PHILA.

A fine bodied, lusterless, enamel made to U.S. Air Corps Spec. #680—Class 20. For all wood and metal surfaces, protects against weather, rust and corrosion. For brush or spraying inside or outside, can be blended with other colors. Ideal for road equipment, scrapers, cranes, trucks, tool sheds and outbuildings. Makes fine prime coat.

Rated Firms Open Account—Others Send Check

J. JACOB SHANNON & CO.
214 N. 22nd St., Phila. 3, Pa.
The Oldest Equip. House in Phila.

SALE — RENT
GUARANTEED LIKE NEW

1949 LORAIN 820 2 C.Y.
HI-FRONT SHOVEL, CRANE, DRAG

CHEMICAL CO.
145 W. 63 St., N.Y.C. MU 5-6826

For Sale—DITCHER

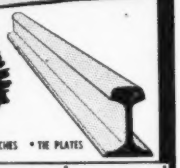
Barber Greene, Model 44-C, Crawler Type with 8'-3" boom and powered by a Chrysler Gas Engine. Model H.P. 331. Located 3130 Belmont Avenue, Youngstown, Ohio.
Price $5,000.00

Gallagher and O'Horo, Inc.
3130 Belmont Ave. Youngstown 4, Ohio

RAILS-TIES
TRACK ACCESSORIES

You can always—
Count on Commercial
FOR COMPLETE STOCKS OF...

RELAY RAILS



• BOLTS • SPIKES • SWITCHES • TIE PLATES

COMMERCIAL METALS COMPANY
BOX 1046 DALLAS, TEXAS

RAILS *New and Relaying*

TRACK MATERIALS AND ACCESSORIES CARRIED IN STOCK

SWITCH MATERIAL • SPIKES & BOLTS • TRACK TOOLS • TIES • TIE PLATES • BUMPERS • COMPLETE SIDE TRACKS

BUILDERS STEEL SUPPLY CO.
4201 WYOMING • P.O. BOX 186 • DEARBORN, MICH.

IMMEDIATE SHIPMENT

RAILS
SWITCH MATERIAL
NEW
RELAYING
ALL TRACK ACCESSORIES

MIDWEST STEEL CORPORATION
CHARLESTON 21, W. VA.

NEW—RAILS—Relayers

All sizes and weights. Also frogs, switches, spikes, bolts, tie plates, contractors' and mine equipment carried in stock.

M. K. FRANK

480 Lexington Ave. Park Bldg.
New York, N. Y. Pittsburgh, Pa.
Reno, Nevada Carnegie, Pa.

FOR SALE
New Wire Rope Blocks

18" Single 20 Ton with S. Shackle..... $25.00
18" 3-Sheave 30 Ton with Shackle..... 50.00
18" 4-Sheave 30 Ton with Shackle..... 75.00
#32 Drop Forge Hooks, New..... 2.00

ABERTHAW COMPANY
133 Southampton St. Boston 18, Mass.

PIPE

FOR SALE—*Immediate Delivery*
C. I. Water Pipe A.W.W.A. Standard

BELL & SPIGOT—10 inch, 12 inch, 16 inch, 20 inch, 24 inch and other sizes
FLANGED PIPE— 4 inch, 6 inch, 8 inch, 10 inch, 12 inch

C.I. Water Pipe Fittings—B & S—and Flanged—All kinds and sizes
SOIL PIPE—EXTRA HEAVY—8 inch—10 inch 12 inch—16 inch
The above subject to prior sales

TAGCO, INC.
111 Front Street Hempstead, L. I., N. Y.
Tel.—Hempstead 2-5535 or 2-5857

EQUIPMENT FOR SALE

4—Ingersoll-Rand FM 2 x 71 WD Wagon Drills
1—Caterpillar D-7 Bulldozer
2—60 K.W. Diesel Generators
1—Model C Scoopmobile with 1 Yd. Bucket
1—2 Cu. Yd. Lima Crane & Shovel
3—500 c.f.m. Ingersoll-Rand Portable Compressors
1—Oliver, Model 80, Rubber Tired Tractor
1—Austin, Model 155, Trencher
1—Carr, Model A, Formgrader
2—Single Drum, 40 HP, Clyde Electric Hoists
1—Double Drum, 8¼ x 10, American Steam Hoist w/o Boiler
12—1½ Yard Concrete Buckets

SUBJECT TO PRIOR SALE

FRAZIER-DAVIS CONSTRUCTION COMPANY
1319 MACKLIND AVE. ST. LOUIS 10, MO.
STerling 1950

FOR SALE
CURRENT MODEL JOHNSON CENTRAL MIXING PLANT COMPLYING WITH CORPS OF ENGINEER SPECIFICATIONS

consisting of

400-CUBIC YARD OCTO BIN
1,000-BBL. CEMENT SILO AND ELEVATOR
TWO 2-CUBIC YARD KOEHRING TILTERS
BATCHERS, CONTROLS, RECORDERS, ETC.
ONE 600-CUBIC YARD 4-POCKET GROUND STORAGE BIN

Arrangement is such that two additional 2-cubic yard tilters can readily be added. Entire plant is less than two years old and has placed only 40,000 cubic yards concrete. Can be inspected in operation in Kentucky.

AVAILABLE IMMEDIATELY

E. J. ALBRECHT COMPANY
2626 WEST 26th STREET CHICAGO 8, ILL.

EST. 1904

DAVIDSON
PIPE COMPANY INC.
FORMERLY
ALBERT & DAVIDSON PIPE CORP.

ONE OF THE LARGEST STOCKS IN THE EAST
Seamless and Welded ⅛" to 26" O.D.
All wall thickness Manufactured.
Specialty large sizes.
Cutting — Threading — Flanging — Fittings — Valves.

Call GEdney 9-6300
50th St. & 2nd Ave., B'klyn 32, N. Y.

155 pcs. Larssen 1 Steel Sheet Piling 48'
120 pcs. Larssen 11 Steel Sheet Piling 48'
Write Wire Phone

ATLANTIC PILING CORP.
47-29 Van Dam St., Long Island City 1, N. Y.
Exeter 2-1286

PILING

LINE PIPE
(Prompt Delivery)

300,000 ft.—2" Std. (2⅜" O.D.) 3.65#
200,000 ft.—3" Std. (3½" O.D.) 7.57#
30,000 ft.—5" Std. (5.563" O.D.) 15#
250,000 ft.—6" Std. (6⅝" O.D.) 18.97#

All above app. 20' random lengths, machine cleaned, straightened, ends beveled for welding, used good condition, suitable oil, water, or gas. Located Washington, Pa. vicinity. Prices available on request.

MID-STATES PIPE & SUPPLY CO.
Ph. 2-9128 Tulsa, Okla.

We do a Nation-Wide business in

STEEL SHEET PILING
IMMEDIATE SHIPMENT

167 pcs. 60 ft. Inland I-27—Illinois
232 pcs. 50 ft. Larssen III New—Florida
250 pcs. 39-33 ft. Carn. M-116—Tenn.
291 pcs. 30 ft. Beth. DP-2—New York
127 pcs. 25 ft. Carn. M-115—Missouri

Other lengths & sections used & new at other locations in United States for rent.
We have Nation-wide reputation for effecting QUICKEST SHIPMENTS
All sizes Vulcan & McKiernan Pile Hammers & Extractors for rent—Shop Rebuilt
Regardless of location of job, Wire, Write or Phone

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St., Chestnut 4474 St. Louis, Mo.

RENT STEEL SHEET PILING

"Faster From Foster"—the exact lengths and sections — all standard makes—of Rental Piling to meet your job needs. Also Rent: Pile Hammers and Pile Extractors.

RAILS • TRACK ACCESSORIES • PIPE • WIRE ROPE

LIB FOSTER CO.
Pittsburgh 30, Pa. New York 7, N.Y.
Chicago 4, Ill. Houston 2, Tex.

STEEL SHEET PILING
BOUGHT—SOLD—RENTED

213 PCS. ZP-32 LB. 50 FT. Z BAR.
243 PCS. BETH. DP-1—50 FT.
550 PCS. CARNEGIE M-116—45 FT.
165 PCS. BETH. AP-3—60 FT.
298 PCS. BETH. DP-2—60 FT.
340 PCS. CARNEGIE MP-101—27 TO 31 FT.
600 PCS. BETH. SP-6-A. 22—35—40—80 FT.
155 PCS. LARSSE 21 LB. 48 FT.
41-B & MARION 32 STEAM CRANES.
3—11B 3 & 85 M.K.T. HAMMERS

800 TONS WIDE FLANGE BEAMS
21 IN. 100 LB. 16 IN. 71 LB.
10 IN. 33 LB., 65 LB., 71 LB., 85ILB.
LENGTHS 20 FT. TO 60 FT.

R. C. STANHOPE, INC.
60 E. 42nd St. N. Y. 17, N. Y.

STEEL SHEET PILING

BELVAL Z *perfect range of corrugated section most economical section moduli*

AMERLUX
STEEL PRODUCTS CO
NEW YORK 17, N. Y.
Direct Mill Office of the
ARBED
STEEL MILLS
IN LUXEMBOURG

BELVAL P *straight web section best deepest bearing*

PIPE AND ACCESSORIES
IF IT'S MADE, WE HAVE IT!

Seamless and Welded—Every Size and Wall Thickness—Cast and Wrought Iron, Steel, Alloys

POWER PIPE FABRICATING
Bending, Coiling, Flanging, Threading, Beveling, Lining, etc.

Valves & Fittings
Piling & Fittings
Culverts
SPEED-LAY PIPE SYSTEMS
Write for brochure

ALBERT
PIPE SUPPLY CO., INC.
Berry at North 13th St.
Brooklyn 11, N. Y.
Phone EVergreen 7-8100

FOR SALE
OAK PILING

450 pieces peeled 40' to 45' long. Immediate delivery. Location: Mansfield, Ohio

J. M. FOSTER & COMPANY
BOX 622, GARY, INDIANA

OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 10:30 A.M. FRIDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY

Bids: May 20, 1952

Bridge at Hancock's Bridge

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Construction of Hancocks Bridge over Alloways Creek in Lower Alloways Creek Township, Salem County, Federal Aid Secondary Project No. S-176(1). The principal items of construction are:

Estimated:
L.S.—Clearing Site
1,450 cu. yds. Foundation Excavation
1,792 cu. yds. Concrete
60,000 lbs. Reinforcement Steel
480,000 lbs. Structural Steel
15,700 lin. ft. Timber Piles
50,000 lbs. Machinery
L.S.—Electrical Equipment

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, May 20, 1952, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 763, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications which provisions require that labor be employed from lists furnished by the State Employment Service, 168 East Broadway, Salem, New Jersey. The attention of bidder is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour. Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: May 27, 1952

Sewage Treatment Plant

CITY OF WILMINGTON, DELWARE

Sealed proposals for furnishing materials and labor to construct the Sewage Treatment Plant, Contract No. 7 of the City of Wilmington's Sewage Treatment Program, will be received from qualified bidders by the Board of Directors of the Street and Sewer Department, Room 251, City Hall, until 2:30 P.M., Eastern Daylight Saving Time, May 27, 1952, at which time and place they will be publicly opened and read aloud.

The work to be done under this contract embraces the construction of the following: two reinforced concrete grit removal structures, two reinforced concrete primary clarifiers, four reinforced concrete digestors, three reinforced concrete elutriation tanks, a reinforced concrete and masonry control building, cast in place pile foundations for the various structures, earth sludge basins, roads and walks, site improvement and other appurtenant work.

Drawings and specifications may be obtained from the office of the Board of Directors of the Street and Sewer Department of the City of Wilmington, or from the office of Whitman, Requardt and Associates, 1304 St. Paul Street, Baltimore 2, Maryland, upon deposit of Twenty-Five Dollars ($25.00) for each set of drawings and specifications, which deposit will be refunded upon return of the plans and specifications in good condition. The drawings which are furnished prospective bidders for a deposit are one-half (½) scale reproductions of the originals. If a bidder desires a set of drawings which are full scale reproductions of the originals, he may obtain them upon payment of Fifteen Dollars ($15.00) for each set desired which payment will not be refunded.

The Board of Directors of the Street and Sewer Department reserves the right to reject any or all bids and to accept the bid, which in its opinion best serves the interests of the City.

By order of
Board of Directors of the Street and Sewer Department
Vaughn Clavey, President
Attested
James J. Livingstone, Secretary

Bids: May 22, 1952

Intercepting Sewers and Sewage Treatment Plant

Sealed proposals, invited by the City of Ashland, will be received at the office of the City Manager, City Hall, Ashland, Wisconsin, until 1:00 P. M. Central Standard Time, on the 22nd day of May, 1952, at which time they will be publicly opened and read aloud.

The proposed work includes the construction of intercepting sewers, pumping stations, and a sewage treatment plant together with the furnishing and installation of all equipment and services together with all material and appurtenances necessary for a compelte installation.

The work will be let in two contracts:
Contract 1—Intercepting Sewers
The work under Contract 1 comprises the construction of 41 feet of 8-inch, 79 feet of 12-inch, 490 feet of 15-inch, 1,016 feet of 18-inch, 380 feet of 21-inch, 4,568 feet of 24-inch tile or concrete gravity sewer, and 437 feet of 8-inch, 2,243 feet of 12-inch, 345 feet of 14-inch cast iron force mains, and 439 feet of 8-inch and 14-inch inverted siphon, and 570 feet of 14-inch and 24-inch inverted siphon. The work to be done consists of the construction of the sewers and force mains complete with all manholes, risers, house connections, blow-offs, overflow structures, and special structures all as shown, specified, and directed.
Contract 2—Sewage Treatment Plant
The work under Contract 2 includes the construction of the Main Building, Screen and Grit Building, preliminary sedimentation tanks, sludge beds, inside and outside piping and the furnishing and installing of all equipment and appurtenances comprising the sewage treatment plant. Also included in this Contract is the construction of two pumping stations and two ejector stations together with the furnishing and installation of all pumps, piping, equipment, and appurtenances as shown, specified and directed.

Instructions to Bidders, Proposal Forms, Contract, Specifications, Form of Performance Bond and Plans may be obtained from the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois, or from the office of the City Manager, Ashland, Wisconsin, on deposit of $10.00, which sum so deposited will be returned in full, if said Contract Documents are returned in good condition within 5 days after the opening of bids.

Proposals must be submitted on the forms furnished by the City, must contain the name of every person interested therein, and must be accompanied by a contract and bond with sureties as prescribed by the form furnished, complete with the exception of the signatures on the part of the City, or in lieu thereof may be accompanied by certified check in the amount of not less than five per cent of the bid payable to the City as a guarantee that if the bid is accepted, the bidder will execute and fill in the proposed contract and bond within three days after the award of the contract.

The City of Ashland reserves the right to reject any or all bids and to waive or not waive any informalities in the bids received.

Acceptance or rejection of proposals will be made as soon as practicable after the bids are received, but the City reserves the right to hold bids for 30 days from the date of opening.

Dated this 12th day of April 1952.
CITY OF ASHLAND, WISCONSIN
By Leo J. Martell, City Clerk

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. 703C-253 for furnishing labor and materials and performing all work for erecting prefabricated building for a warehouse at Alcova Dam Government Community, Kendrick Project, Wyoming, will be mailed to P. O. Box 280, Casper, Wyoming or delivered to the office of the Bureau of Reclamation in time for the public opening at 10:30 am., Mountain Standard Time, May 8, 1952, at the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming. Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, Building No. 46, Denver Federal Center, Denver, Colorado; and I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming. No charge for copies of the specifications and drawings furnished for bidding purposes; for all others $0.50 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3710) will be received by Bureau of Reclamation, Ephrata, Washington, until May 20, 1952, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork, asphaltic membrane lining, and structures for Area W-6A laterals, sublaterals, and waterways, West Canal laterals, Columbia Basin Project, Washington. The work is situated southeast of Quincy, Washington. Principal items in 3 schedules are approximately: 740,000 cu. yds. excavation; 2 miles asphaltic membrane lining; 2,400 cu. yds. concrete; 12,600 lin. ft. concrete pipe; 76,000 lbs. metalwork; 2 outdoor pumping plants each with 2 units; and other work. Time allowed for completion will be 500 days. For particulars, address Bureau of Reclamation, Ephrata, Washington; or Building 53, Denver Federal Center, Denver, Colorado.

OFFICIAL PROPOSALS

Bids: May 20, 1952

Construction Work, Kentucky

Sealed proposals will be received at the office of the Sanitation District No. 1 of Campbell and Kenton Counties, Kentucky, 37 East Fourth Street, Newport, Kentucky, until 2 P.M., Eastern Standard Time, May 20, 1952, and opened immediately thereafter for furnishing the material and performing the labor for the execution and construction of the following units and sections upon which separate proposals will be received:

Unit 1, Section B
Ohio River Collector—Campbell County
Unit 1, Section C
Licking River, Banklick Creek and Three Mile Creek Collectors
Unit 1, Section D
Ohio River Collector—Kenton County and Willow Run Collector
Unit 2
Second Street and Banklick Lift Stations and Licking River Crossing Nos. 1, 2, and 3
Unit 3
Treatment Plant Complete

In accordance with the plans and specifications prepared by Vogt, Ivers, Seaman and Associates for the Commissioners of the Sanitation District No. 1 of Campbell and Kenton Counties, Kentucky, and on file in the office of the Sanitation District No. 1. Copies of plans for the complete project or for any units or sections together with specifications and proposal forms and any further information desired, may be secured from the office of Vogt, Ivers, Seaman and Associates, Engineers-Architects, 509 Second National Building, Cincinnati, Ohio.

Drawings and specifications will be forwarded, shipping charges COLLECT, upon receipt of written requests. Deposits in the amounts indicated will be required for the plans and specifications:

Complete set	$100.00
Unit 1, Section B	20.00
Unit 1, Section C	30.00
Unit 1, Section D	20.00
Unit 2	20.00
Unit 3	40.00

Refunds for the plans and specifications will be made, returned prepaid, in good usable condition, within 10 days after bids have been opened. Bids are to be sealed and addressed to:

Sanitation District No. 1 of Campbell and Kenton Counties, Kentucky
37 East Fourth Street
Newport, Kentucky

The Commissioners of Sanitation District No. 1 reserve the right to reject any or all proposals, the proposal for any one or more of the units or sections of the work under consideration.

WILLIAM D. ANDERSON, Secretary
Sanitation District No. 1 of Campbell and Kenton Counties, Ky.

Bids: May 13, 1952

Allamuchy—Hackettstown Road

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Construction of a portion of Allamuchy-Hackettstown Road from end of existing concrete running southerly toward Hackettstown, in Allamuchy Township, Warren County, Federal Aid Secondary Project No. S-7(4). Length 0.435 mile. The principal items of construction are:

Estimated:
1,758 cu. yds. Roadway Excavation-Unclassified
852 cu. yds. Subbase
5,101 sq. yds. 8" Plain Concrete Pavement
2,530 lin. ft. Beam Guard Rail

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, May 13, 1952, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements, and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 18 E. Blackwell Street, Dover, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00, and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: May 12, 1952

Show Window for Rose Fashions

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUS TERMINAL
CONTRACT BT-110.051

Sealed proposals for the construction of a show window for Rose Fashions in the Port Authority Bus Terminal will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111-8th Ave., New York 11, until 11:30 A.M., Monday, May 12, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials, Room 1110, and copies will be furnished upon deposit of $10 per set. Deposit to be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt should then be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, May 1, 1952.

Bids: May 21, 1952

West Church Street Sewers

SEWER DISTRICT NO. 1
TOWN OF ELMIRA, CHEMUNG COUNTY
NEW YORK
SEWERAGE SYSTEM

Sealed proposals for the construction of a sewerage will be received by the Clerk of the Town of Elmira, Chemung County, New York, at the Town Hall, 1223 West Water Street, Elmira, New York, until 1:30 P.M., Eastern Standard Time, May 21st, 1952, at which time they will be publicly opened and read. The work will be performed under the following contract.

Contract No. 1—Sewers North Of and Including West Church Street.

Information for Bidders, Bid Form, Schedule, Form of Agreement, Form of Performance Bond, Specifications, Plans and other Contract Documents may be examined at the office of the Town Clerk, Town Hall, 1223 West Water Street, Elmira, New York, or at the offices of Gibbs & Hill, Inc., Pennsylvania Station, New York, New York, and copies thereof may be obtained upon deposit of $20.00 for each set. The full deposit will be refunded to each bidder, and one-half the deposit to each non-bidder upon the return of such set in good condition within 10 days after the opening of bids.

Each offer or proposal shall be accompanied by a certified check, payable to the Supervisor of the Town of Elmira, for a sum equal to five per cent of the amount of the bid for the construction of said sewer system; or a bond with sufficient sureties as approved by the Supervisor of the Town of Elmira in a penal sum equal to five per cent of the amount of the bid for the construction of said sewer system, said bond to be conditioned that if the offeror's proposal be accepted he will enter into a contract for the said construction, and that he will execute such further security as may be required for the faithful performance of the contract. If the person or corporation making such proposal or offer shall fail to enter into the contract pursuant to the requirements of the Board, or shall fail to give the further security as prescribed in this notice, within the time limited therein, then the check so deposited as aforesaid and the moneys standing to the credit of the same shall be forfeited to the Town as liquidated damages and not as a penalty, and the Supervisor shall collect the same or enforce the payment of the bond for the benefit of the Town.

The Town Board of the Town of Elmira reserves the right to waive any informalities in or to reject any or all bids.

TOWN BOARD OF THE
TOWN OF ELMIRA
(Signed) By Clinton J. Case
Town Clerk

May 1, 1952.

Bids: May 28, 1952

Sewerage System

SEWER DISTRICT NO. 1
TOWN OF ELMIRA, CHEMUNG COUNTY
NEW YORK

Sealed proposals for the construction of a sewerage system will be received by the Clerk of the Town of Elmira, Chemung County, New York, at the Town Hall, 1223 West Water Street, Elmira, New York, until 1:30 P.M., Eastern Standard Time, May 28th, 1952, at which time they will be publicly opened and read. The work will be performed under the following contract.

Contract No. 2—Sewers South of West Church Street and Pumping Station.

Information for Bidders, Bid Form, Schedule, Form of Agreement, Form of Performance Bond, Specifications, Plans and other Contract Documents may be examined at the office of the Town Clerk, Town Hall, 1223 West Water Street, Elmira, New York, or at the offices of Gibbs & Hill, Inc., Pennsylvania Station, New York, New York, and copies thereof may be obtained upon deposit of $20.00 for each set. The full deposit will be refunded to each bidder, and one-half the deposit to each non-bidder upon the return of such set in good condition within 10 days after the opening of bids.

Each offer or proposal shall be accompanied by a certified check, payable to the Supervisor of the Town of Elmira, for a sum equal to five per cent of the amount of the bid for the construction of said sewer system; or a bond with sufficient sureties as approved by the Supervisor of the Town of Elmira in a penal sum equal to five per cent of the amount of the bid for the construction of said sewer system, said bond to be conditioned that if the offeror's proposal be accepted he will enter into a contract for the said construction, and that he will execute such further security as may be required for the faithful performance of the contract. If the person or corporation making such proposal or offer shall fail to enter into the contract pursuant to the requirements of the Board, or shall fail to give the further security as prescribed in this notice, within the time limited therein, then the check so deposited as aforesaid and the moneys standing to the credit of the same shall be forfeited to the Town as liquidated damages and not as a penalty, and the Supervisor shall collect the same or enforce the payment of the bond for the benefit of the Town.

The Town Board of the Town of Elmira reserves the right to waive any informalities in or to reject any or all bids.

TOWN BOARD OF THE
TOWN OF ELMIRA
(Signed) By Clinton J. Case
Town Clerk

May 1, 1952.

OFFICIAL PROPOSALS

Bids: May 15, 1952

Sanitary Sewerage Facilities

Sealed bids will be received by the Board of County Supervisors of Fairfax County, Virginia, at the Office of the Sanitary Engineer, County of Fairfax, VEPCO Building, Fairfax, Virginia, until 2:00 O'CLOCK P.M., E. D. S. T., THURSDAY, MAY 15, 1952, for the installation of approximately 53,300 feet of 8" and 10" sanitary sewers, and appurtenant facilities, in Sanitary District No. 1, which has been designated as "Contract No. 12", and promptly thereafter they will be publicly opened and read in the Board of County Supervisors' Room, County Office Building, Fairfax, Virginia.

Plans, specifications and contract documents may be examined at the Office of Sanitary Engineer, and copies thereof may be obtained from Massey Engineers, Consulting Engineers, Ford Building, Fairfax, Virginia, upon payment of $15.00 in cash for each set, which sum will be refunded upon the return of such documents in good condition within ten (10) days after the bid date. Bids must be submitted on the forms supplied for this purpose and in strict accordance with the instructions therefor. Each bidder will be required to show evidence of possession of a certificate of registration as a contractor in the Commonwealth of Virginia before his bid will be considered.

Each bid must be accompanied by a bid bond or certified check made payable to the County of Fairfax, Virginia, in the amount of at least five per centum (5%) of the total amount of the bid. The successful bidder will be required to furnish a performance and maintenance bond in a penal sum equal to the full contract price.

The time for completion of the contract is 180 consecutive calendar days and liquidated damages in the amount of $25.00 per day will be assessed in the event of delay or default in the completion of the contract.

No bid may be withdrawn for a period of thirty (30) days after the actual opening thereof, and the right is reserved to waive any informality therein, to reject any or all bids and to award the contract as a whole to one contractor or in sections to several contractors.

James J. Corbalis, Jr.
Sanitary Engineer
County of Fairfax
Fairfax, Virginia

Bids: May 28, 1952

Taxiway 27 & Taxiway S Extension

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
GRADING, DRAINAGE AND PAVING
CONTRACT NYA-260.001

Sealed proposals for the construction of Taxiway 27 and the extension of Taxiway S, including the furnishing and installation of drainage, paving and conduit systems, all at New York International Airport, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111-8th Ave., New York 11, until 11:00 A.M., Wednesday, May 28, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials, Room 1110, and copies will be furnished upon deposit of $25 per set. Deposit to be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt should then be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK
AUTHORITY
Howard S. Cullman, Chairman
New York, May 1, 1952.

U. S. Government

GOVERNMENT OF THE DISTRICT of Columbia, Director of Sanitary Engineering, D. C., April 25, 1952. Sealed proposals will be received in Room 509, District Building, 14th and E Streets, nw., Washington 4, D. C., until 2:00 P.M., DAYLIGHT SAVING TIME, MAY 14, 1952, and then publicly opened and read for Chlorination Equipment and Piping, Sewage Treatment Plant, Washington, D. C. Proposal forms, specifications and drawings may be obtained in the office of Chief Clerk, E.D., Room 427 District Building (Telephone National 6000, Extension 2378), upon the deposit of a certified check in the amount of Fifty Dollars ($50.00) for each set, made payable to the Collector of Taxes, D. C.

OFFICIAL PROPOSALS

Bids: May 15, 1952

New State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, the Public Buildings Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on Thursday, MAY 15, 1952 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. Nickerson, Dist. Engr., 353 Broadway, Albany, New York				
Greene	FARC 52-24	Coxsackie Village, S. H. 5369 Coxsackie-Ravena, Pt. 1, S. H. 5198 Greenville-Coxsackie, Pt. 3, S. H. 1365 Proj. F-365(5)	0.99	Asph. Conc. Ty. 1A, Opt., Twin Conc. Box Br. 20'- 8½" Each	$14,000 Plans $10	$249,000
Saratoga & Warren	FASS 52-19	Corinth Bridge & Approaches (Co. Rd.) Proj. S-327(1)	0.34	Bit. Mac. Ty. 1 Pen. Meth. Cant. Deck Girder Br. 5 Sp. 630'	$35,000 Plans $15	$640,000
		DISTRICT No. 5				
		C. R. Waters, Dist. Engr., State Office Building, 65 Court St., Buffalo, N. Y.				
Chautauqua	FASS 52-6	Dunkirk-Middle Road (Co. Rd. 121) Proj. S-345(1)	2.54	Asph. Conc. Ty. 1A Opt.= 2.50 Mi. Misc. Work = 0.04 Mi. 30' Reinf./Conc. Slab Bridge	$10,000 Plans $10	$180,000
Chautauqua	R. C. 52-18 S. T. 52-4	Silver Creek Village: Central Ave., S. H. 9240 South Western Blvd., Pts. 9 & 10, S. H. 1852, Irving-Silver Creek, S. H. 5452 Silver Creek Connection	3.96	Asph. Conc. Ty. 1A Opt.= 2.85 Mi. Two Course Cem. Conc. Pave. = 1.08 Mi. Asph. Conc. Ty. 1A Opt.= 0.03 Mi. Widening	$37,000 Plans $15	$625,000
		DISTRICT No. 8				
		J. S. Bixby, Dist. Engr., Pleasant Valley Road, Poughkeepsie, New York				
Orange	PIP 52-1	Palisades Interstate Pkwy. Pts. 1 & 2	1.01	Grading = 0.17 Mi. 8" Cem. Conc. Pavt. 48' Var. Wide = 0.31 Mi. Asph. Conc. Ty. 1A, Opt.= 0.53 Mi. Hv. Sep. Rig. Fr. Arch 2 Sp. @ 63.5' Ea. Hv. Sep. Rig. Fr. Arch 2 Sp. @ 42.71' Ea. Rig. Fr. Arch Br. 22.33' Sp.	$45,000 Plans $25	$812,000
		DISTRICT No. 9				
		F. W. Donovan, Dist. Engr., 71 Frederick St., Binghamton, N. Y.				
Delaware	52-BWS4-6-7	New York City Board of Water Supply Roads No. 4-6 & 7 (Pepacton Reservoir)	9.30	Bit. Mac. Ty. 1 Pen. Meth.	$90,000 Plans $25	$1,665,000
		DISTRICT No. 10				
		J. J. Darcy, Dist. Engr., Montauk Highway at Little East Neck Road, Babylon, N. Y.				
Bronx	FAMDE 52-3 FAMDEG 52-4	Major Deegan Expressway Extension Cont. 4 Proj. U. & UG 1082(10)	0.70	Grading, Paving & Misc. Work, Alterations to R. R. G. S. Struct. HGS-Cont. 2 Sp. I-Beam (Alpha) 118'- 6¾" HGS Rigid Fram. 60'-2¼" 9" Cem. Conc. Pavt. Asph. Conc. Ty. 1A, Opt., 36' Wide = 1.23 Mi. Asph. Conc. Ty. 1A Opt. = 1.98 Mi. Misc. Work = 0.30 Mi.	$130,000 Plans $50	$2,350,000
Nassau	FARC 52-23	Conduit Blvd. Pts. 3, 3A, S. H. 1699A-1699C, 1953 Proj. U-947(9)	3.51	Beach Protection (Stone 5% of Bid Jetty) Plans $10	$90,000 Plans $15	$1,660,000
Suffolk		Shinnecock Inlet	....	Beach Protection (Stone 5% of Bid Jetty) Plans $10		$819,000
Suffolk		Moriches Inlet	....	Beach Protection (Stone 5% of Bid Jetty) Plans $10		$315,675
Suffolk		Moriches Inlet (Pikes Beach)	....	Beach Protection 5% of Bid (Hydraulic Fill) Plans $10		$190,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder. Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders". When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proopsal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY,
Supt. of Public Works

Bids: June 2, 1952

Dredging an Industrial Channel in San Juan Harbor, P. R.

PUERTO RICO TRANSPORTATION AUTHORITY
P. O. BOX 3508
San Juan, P. R.

1. Sealed bids in triplicate will be received in the Office of the General Manager at Building 53, Isla Grande Airport, San Juan, Puerto Rico until 2:00 P. M. (Puerto Rico Time) on the 2nd day of June, 1952, at which time and place all bids will be opened and read aloud, for furnishing all plant, labor, materials and equipment and performing all work for the above described project in strict accordance with the specifications and contract documents.

2. Proposal forms of contract documents, including plans and specifications are at file in the Office of the Chief Engineer of the Puerto Rico Transportation Authority, Building 53, Isla Grande Airport, San Juan, Puerto Rico.

3. Copies of the documents may be obtained until 48 hours prior to assigned time for opening the bids by depositing $25.00 with the Puerto Rico Transportation Authority for each set of documents so obtained. The amount of the deposit will be refunded to each person who returns the plans and documents in good conditions within 20 days after the opening of bids.

The Puerto Rico Transportation Authority reserves the right to reject any and all bids, to waive any informality in bids received, and to accept or reject any or all items of any bid, unless the bidder qualifies such bid by specific limitation.

A certified check or bank draft payable to the Puerto Rico Transportation Authority, U. S. Government Bonds, or a satisfactory bid bond executed by the bidder and acceptable sureties in an amount equal to five per cent (5%) of the bid price shall be submitted with each bid.

SALVADOR V. CARO General Manager

OFFICIAL PROPOSALS

Bids: May 19, 1952

Operations Building Extension of South Wing Building

Bids: May 19, 1952
THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-210.021

Sealed proposals for the construction of the extension of the south wing of the Operations Building (exclusive of piles) at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111-8th Ave., New York 11, until 11:00 A.M., Monday, May 19, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials, Room 1110, and copies will be furnished upon deposit of $25 per set. Deposit to be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt should then be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, May 1, 1952.

Bids: May 19, 1952

East Side Drainage Project

NOTICE IS HEREBY GIVEN that pursuant to a resolution of the Town Board of the Town of Tonawanda, Erie County, New York, sealed proposals will be received and considered by said Town Board on the 19th day of May, 1952, at 8:00 o'clock P.M., Daylight Saving Time, in the Council Room of the Municipal Building, Kenmore, New York, for furnishing all materials, equipment, and together with all labor for the construction of a section of the East Side Drainage Project, described as Contract "A" and Contract "B" of Division IV, in accordance with the contract documents therefor, including plans, specifications, instructions to bidders, etc., prepared by Nussbaumer and Clark, Consulting Engineers of the Town of Tonawanda, New York, and approved by the Town Board of said Town, all of which are on file with the Town Clerk at his office in the Municipal Building, Kenmore 17, New York, where the same may be examined during the usual business hours.

Copies of the proposed contract documents, plans, specifications, and instructions to bidders, may also be examined at the office of Nussbaumer and Clarke, Consulting Engineers, 327 Franklin Street, Buffalo 2, New York. One copy of said proposed documents may be obtained upon payment of $50.00. Any bidder, upon returning said plans and contract documents in good condition, within twenty (20) days following the taking of bids, will be refunded the full amount of his deposit; non-bidders will similarly be refunded only one-half the deposit.

The Town Board of the Town of Tonawanda, New York, reserves the right to reject any or all bids, or to waive any informalities, or to make an award to other than the low bidders.

Each proposal must be accompanied by a certified check for a sum equal to five per centum (5%) of the estimated expense of the improvement, payable to the order of the Supervisor, or a bond with sufficient sureties, to be approved by the Supervisor, or a penal sum equal to five per centum (5%), of the estimated expense of the improvement, to wit:

Contract "A"	$75,000.00
Contract "B"	$65,000.00
and if lump sum bid on both sections	$135,000.00

conditioned that, if his proposal is accepted, he will enter into a contract for the same, and that he will execute such further security as may be required for the faithful performance of the contract.

No bidder may withdraw his bid within sixty (60) days after the date set for the opening thereof, but may withdraw same at any time prior to the scheduled time for the opening of bids.

ROBERT JOHNSON
Town Clerk
Town of Tonawanda, New York
Dated: April 21, 1952
Published: April 24, 1952

BUSINESS AND FINANCE

DPA reports more construction ahead under fast-tax amortization program

The huge $12.4-billion industrial expansion aided by fast tax amortization is now about half-built, according to new figures recently released by the Defense Production Administration.

• About 52% or $6.4 billion of the new plant and equipment was in place March 31, according to estimates from the companies themselves.

• About 41% of the construction part of the expansion was in place as of Dec. 31. That means about $1.5 billion of the $3.8 billion construction cost involved. Machinery and equipment account for about 65% of the total cost of the expansion.

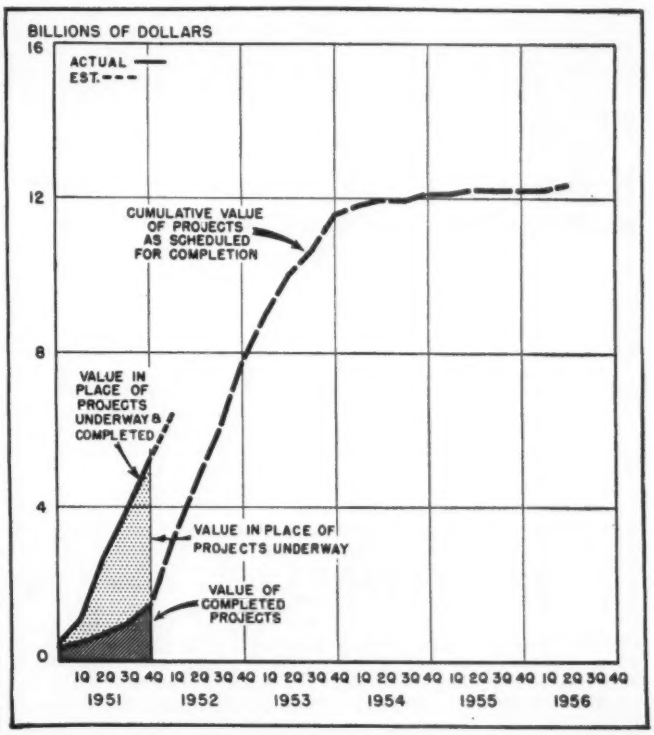
There were 341 plant expansion projects valued at $1.5 billion which had received certificates of necessity but had not yet begun construction as of Dec. 31.

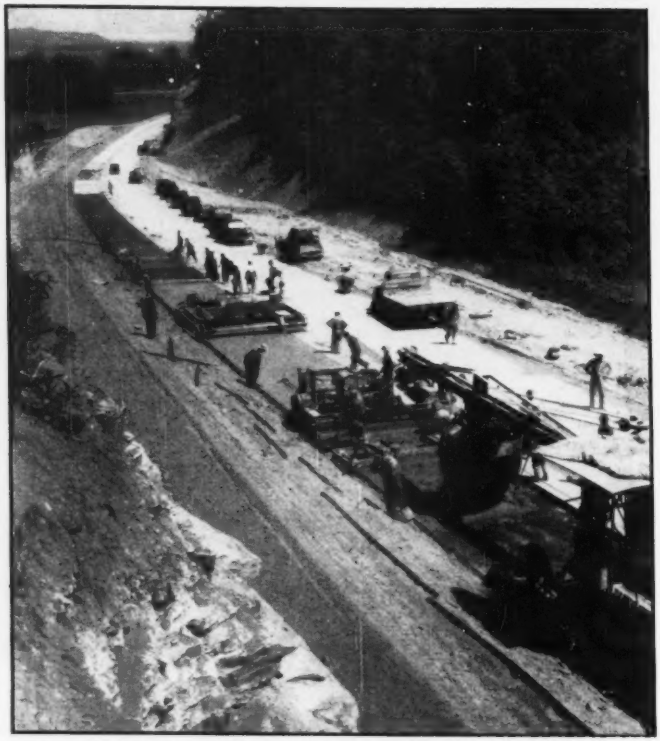
• **Yet to go**—Biggest industries represented in the "not yet started" group were: Steel with $387 million worth of plants planned but not started; petroleum refining with $208 million; and chemicals with $215 million in projects not yet started.

According to company reports to DPA, the value of work put in place during the fourth quarter of 1951 fell about 9% below the amount scheduled.

Plant expansion covered by certificates of necessity are expected to be virtually 100 % complete and in operation by the end of 1954. However, 63% of the plants are expected to be in operation by the end of 1952, and 94% by the end of 1953. The facilities are to be completed in 1954 are largely those for the long-range development of ore resources.

(*Continued on next page*)





HIGHWAY CONSTRUCTION RECORDS may fall this year. For the first four months of 1952, contract awards for highways are 23% above the record set in 1950.

Highway construction may set record as first four months top 1950 high

This year, roadbuilders are on their way to a new record. Contract awards for highway construction, as reported by ENGINEERING NEWS-RECORD, total 416 million for the first four months of 1952. This is 32% above 1951, and 23% over the previous record of $337 million, set in 1950.

In April alone, contract awards for highway construction amounted to $149 million.

New York and Texas are leading the way with $37 million and $34 million in new contracts respectively. Pennsylvania, with $28 million and California, with $21 million, are next in order of contract volume since the start of the year.

• **Regional leaders**—In New England, Massachusetts is leading in the volume of highway contract awards with $14 million, two-thirds of the region's $22-million total.

In the Mid-Atlantic region, New York and Pennsylvania together account for almost two-thirds of the region's $78-million contract total.

Illinois, with $18 million in contract awards for highways, leads in the Mid-West. Michigan has $16 million reported in contract awards, and Wisconsin, $15 million. Ohio has slightly more than $11 million in awards so far.

North Carolina and Georgia are setting the pace for highway construction in the South, with $15 million and $14 million, respectively. Florida, with $11 million, and Louisiana, with $10 million followed in that order.

In the states west of the Mississippi, Texas leads in highway awards with $34 million reported for four months. Oklahoma is second in this region, with $17 million on the books. These two states coupled with Iowa's $12 million and Missouri's $11 million, account for 82% of the contracts there.

As expected, California is leading the way in the Far West, with awards for $21 million in highway construction. Oregon follows with $11 million.

The pattern of contract awards for highways in the first four months follows the trend shown in ENGINEERING NEWS-RECORD's survey of state highway budgets (ENR March 20, p. 31).

ENR's survey of highway budgets showed a 16% increase over last year, in new highways planned by 42 states and the District of Columbia.

States reporting the largest budgets in the ENR survey are also the ones with the biggest volume of contract awards for highways so far this year.

Highway needs $32 billion

Even with highway construction booming, the present rate of construction will make only a dent in the nation's highway needs. The federal-aid highway system alone needed more than $32 billion worth of construction, to meet current needs, as of the first of this year, according to the American Association of State Highway Officials.

Of the $32 billion, primary highways needed $15.3 million, almost half of the total. Secondary highways would require $8.5 billion and another $8.3 billion would have to be spent on urban highway construction (See table on federal-aid highway needs, p. 111).

According to AASHO, eight states needed new federal-aid highway construction costing more than $1 billion. California put its needs as high as $3.1 billion and New York reported that it needed more than $2.9 billion.

Urban highways accounted for 37% of California's needs, representing 675 miles. Almost half of New York's needs were for the primary system.

Illinois, Pennsylvania, Ohio, Texas, West Virginia and New Jersey round out the list of states reporting highway needs in excess of $1 billion.

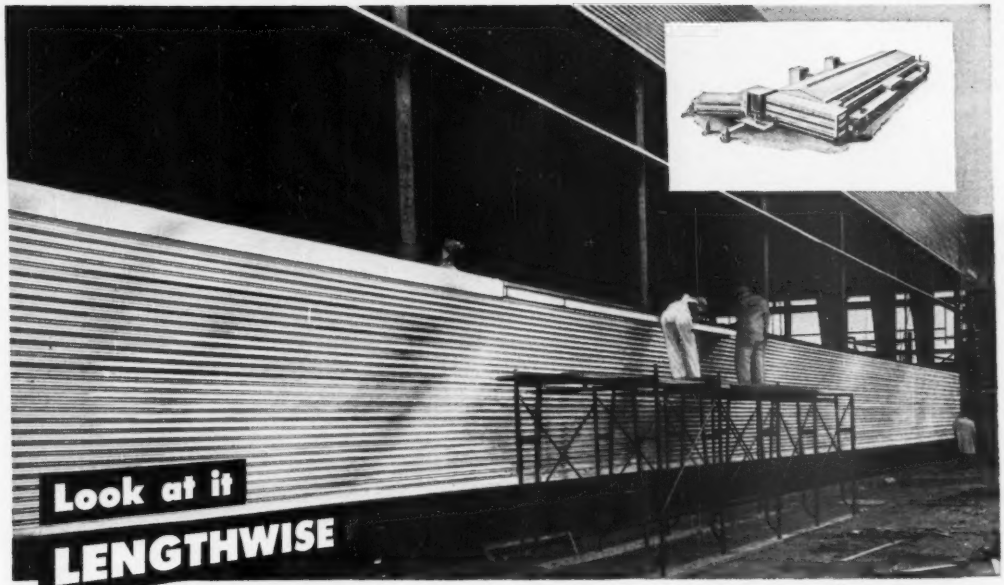
Out of all 48 states, 25 reported their highway deficiencies were so extensive that more than $500 million in highway improvements would be needed for their federal-aid highways.

Assuming these deficiencies did not grow worse, it would still require expenditures of $100 million a year for five years to meet the needs as of Jan. 1, 1952.

With the federal government footing half of the bill, the highway budgets for the states would still have to be more than $50 million a year.

ENR's survey of highway budgets for 1952 (ENR March 20, p. 31) showed that only 11 of those states budgeted $50 million or more, and those budgets covered more than just the federal-aid systems.

Budgets of six other states totaled between $40 million and $50 million.



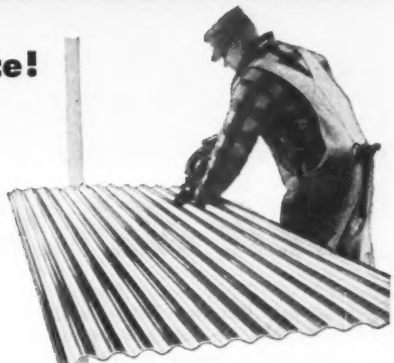
...Longer Life, Lower Maintenance!

When Hytron, Division of CBS, planned its new Danvers, Mass., plant, architects and clients agreed on Reynolds *Lifetime* Aluminum Industrial Corrugated for siding. Low initial cost, long life and lowest maintenance were practical factors. But the architects—R. P. Systems Engineers—sought a design effect, too. So they specified *horizontal* application. General contractor was L. R. Porter Construction Company.

Both as siding and as roofing (vertically applied) this material saves substantially on labor costs. It is light weight, easy to handle... workmen like it. In addition, aluminum reflects radiant heat ...keeps interiors up to 15° cooler in summer and warmer in winter.

Plan your next construction with this high-strength aluminum that never rusts, resists corrosion.

Call Reynolds for literature and technical assistance...offices in principal cities. Check your classified phone book for our listing under "Building Materials," or write to Reynolds Metals Company, Building Products Division, 2009 South Ninth Street, Louisville 1, Kentucky.



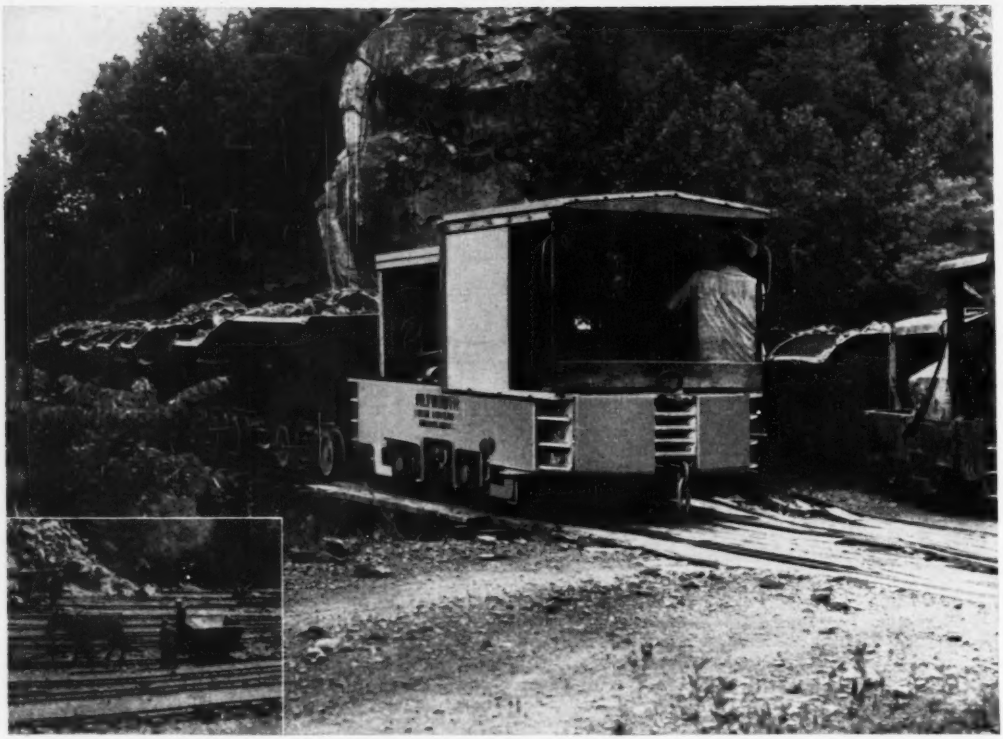
Specifications:

Thickness .032"
Weight 56 lbs. per square
Corrugations 7/8" deep, 2-2/3" crown to crown
Roofing width 35", coverage 32"
Siding with 33-3/4", coverage 32"
Lengths 5', 6', 7', 9', 10', 11', 12'

Military demands for aluminum limit supply, but Reynolds is rapidly expanding aluminum capacity. Rated orders receive priority handling.

REYNOLDS *Lifetime* ALUMINUM INDUSTRIAL CORRUGATED

Tune in every Week..."The Kate Smith Evening Hour" on Television—NBC Network



WE'VE BEEN SAVING EVER SINCE

Riverton Lime and Stone Company, Inc., Riverton, Va., like many other firms, learned long ago that investing in Plymouth Locomotives is the best way to save money on haulage costs.

"Over 24 years ago we replaced mule-power with a 3½-ton Plymouth. The purchase of a 7-ton Plymouth followed shortly and we have added two more since. We have been realizing very definite savings ever since we started using Plymouth Locomotives," states H. W. Smith, Vice-President in Charge of Operations.

Riverton's first Plymouth, like the others, works up to 46 hours per week. On each trip it pushes 10 cars of stone up 3½% grades. From the first, it has delivered dependable, economical service with a minimum of maintenance!

The time-defying construction of Plymouth Locomotives is providing dependable service and economical operation and maintenance on all kinds of tough hauling jobs. Gasoline or Diesel-mechanical, Diesel-electric, and gasoline or Diesel-hydraulic power available on models for standard or narrow gauge track. Sizes from 3 to 70 tons.

What are your requirements? Write for the new Plymouth catalog. PLYMOUTH LOCOMOTIVE WORKS, Division of The Fate-Root-Heath Company, Dept. A-4, Plymouth, Ohio.

PLYMOUTH® LOCOMOTIVES

Also manufactures F-R-H ceramic machinery

FEDERAL-AID HIGHWAY NEEDS DECEMBER 31, 1951*

State	Primary		Secondary		Urban		Total	
	Miles	Cost	Miles	Cost	Miles	Cost	Miles	Cost
		(Millions)		(Millions)		(Millions)		(Millions)
Alabama	1,645	$127.5	4,918	$107.0	204	$69.7	6,767	$304.2
Arizona	1,922	97.6	2,613	71.2	55	23.7	4,590	192.4
Arkansas	3,036	234.0	12,388	283.2	127	57.5	15,551	574.6
California	4,837	1,261.9	6,100	700.5	675	1,184.1	11,612	3,146.6
Colorado	1,483	168.3	2,309	125.2	113	70.2	3,905	363.6
Connecticut	376	213.6	287	70.2	237	363.9	900	647.7
D. C.	.....	.....	15	3.4	50	212.3	65	215.7
Delaware	412	72.5	1,043	22.9	35	34.7	1,490	130.1
Florida	721	64.6	2,319	87.8	277	77.8	3,317	230.3
Georgia	3,098	240.1	8,516	216.8	326	171.4	11,940	628.3
Idaho	1,931	98.1	2,279	54.1	36	7.2	4,246	159.4
Illinois	4,084	619.6	4,037	83.8	485	790.6	8,606	1,493.9
Indiana	3,374	303.1	5,683	309.4	284	61.1	9,341	673.6
Iowa	7,735	423.4	18,882	208.5	904	74.1	27,521	706.0
Kansas	4,040	292.8	10,547	115.7	100	46.4	14,687	454.9
Kentucky	3,048	211.2	7,428	272.3	117	72.5	10,593	555.9
Louisiana	2,038	139.6	4,040	86.5	163	142.7	6,241	368.8
Maine	953	91.1	745	30.1	82	48.4	1,780	169.5
Maryland	947	254.5	1,579	144.9	165	205.2	2,691	604.7
Massachusetts	838	259.9	1,912	269.5	665	450.4	3,415	979.8
Michigan	3,322	384.0	8,728	224.4	286	248.0	12,336	856.4
Minnesota	4,140	155.8	12,216	245.4	352	213.1	16,708	614.3
Mississippi	3,354	177.0	6,550	105.3	130	24.8	10,034	307.1
Missouri	5,690	296.8	13,000	118.0	63	142.0	18,753	556.8
Montana	4,161	303.3	1,944	63.4	20	5.1	6,125	371.8
Nebraska	3,593	193.8	4,835	113.6	74	30.1	8,502	337.4
Nevada	1,841	55.2	1,172	27.0	22	12.8	3,035	95.0
New Hampshire	878	91.5	865	64.0	108	25.8	1,851	181.4
New Jersey	691	531.0	637	38.2	243	448.1	1,571	1,017.3
New Mexico	3,002	145.8	3,024	75.8	89	12.4	6,115	234.1
New York	8,185	1,413.6	10,229	810.3	1,001	694.2	19,415	2,918.1
North Carolina	4,282	398.2	3,382	80.2	218	89.6	7,882	567.9
North Dakota	2,309	111.8	8,726	121.4	165	30.9	11,200	264.1
Ohio	3,047	581.6	4,398	293.6	362	463.8	7,807	1,338.9
Oklahoma	4,804	470.1	6,880	173.3	155	98.9	11,839	742.3
Oregon	3,311	288.1	4,246	149.6	81	52.2	7,638	489.9
Pennsylvania	4,107	879.0	5,018	310.7	233	245.7	9,358	1,435.4
Rhode Island	107	31.3	77	7.9	98	127.9	282	167.1
South Carolina	3,310	113.1	4,651	63.5	143	81.6	8,104	258.3
South Dakota	3,747	247.0	8,195	135.5	73	15.7	12,015	398.2
Tennessee	3,867	617.2	6,570	195.4	110	77.2	10,547	889.7
Texas	12,677	733.4	13,994	261.9	654	318.0	27,325	1,313.3
Utah	1,721	149.2	1,891	47.0	131	52.5	3,743	248.7
Vermont	789	101.1	756	40.2	30	9.7	1,575	151.0
Virginia	3,642	351.6	10,654	258.3	233	109.8	14,529	719.6
Washington	2,611	329.9	4,016	159.3	142	154.6	6,769	643.8
West Virginia	2,149	453.8	9,399	516.7	173	201.8	11,721	1,172.3
Wisconsin	4,225	342.8	10,127	456.0	178	110.4	14,530	909.2
Wyoming	2,467	129.1	891	16.3	32	12.3	3,390	157.8
Hawaii	149	17.0	175	23.7	15	9.3	339	50.0
Total	148,696	$15,266.2	264,886	$8,458.9	10,714	$8,282.1	424,296	$32,007.2

American Association of State Highway Officials data.

(Continued on next page)

Tax cut planned to aid construction

A tax reduction plan for the express purpose of stimulating construction is being drawn up by the joint staff of the tax-writing committees of Congress.

The plan will be put before Congress next year in case current soft spots in business develop into a broad recession. Congressional leaders of both parties are thinking about the possibility of a $6-billion slash, which would put rates on corporations back to the levels prevailing after the first post-Korea increase. A few—like Rep. Daniel Reed of New York—are talking about a $15-billion slash all the way back to 1949 levels.

The number one goal of an anti-deflation tax policy would be to encourage capital investment in new plant and equipment. The idea would be to take up the slack caused by declining government expenditures for arms.

The Excess Profits Tax would probably be killed or sharply reduced as a first step. It will take about $2.7 billion from corporations this year. Key congressional tax experts feel a lot of this would go into construction if the levy were killed.

The next administration can't avoid a tax showdown next year. The Excess Profits Tax, for example, runs out June 30, 1953. Then on Dec. 31 the personal income tax increases in the Revenue Act of 1950 will end. And on April 1, 1954, the normal and surtax increases imposed on corporations in 1951, will expire.

These cut-off dates mean the new administration will have to go to the mat with Congress on taxes before its first fiscal year is ended. It doesn't make any difference which party wins in November. Tax-cutting will become a major issue regardless of who wins.

Congressional leaders think reductions are a strong likelihood if a recession develops. Both parties have a tradition of having cut taxes in order to stimulate business. The Republicans did it after World War I in the face of a sizeable public debt. The Democrats did it in 1945, specifically for the purpose of forestalling a depression.

Tax collections are running behind schedule for this fiscal year. After the big March payments were in, receipts were $1.5 to $2 billion behind schedule. If they don't catch up between now and the end of the fiscal year—June thirty—tax cutters will take it as a sign that the time has come for a reduction.

Government economists still predict that business will improve by the end of the year. This would dim the chances of a cut for corporations. But it would not eliminate the chance of a cut in personal taxes. Tax-cutters would argue that a lessened load on consumers would be one way to keep business good in a period of declining government spending.

Treasury experts don't take talk of reducing taxes seriously. They still stress the possibility of inflation, rather than recession. Some of these are guessing that neither party will significantly reduce taxes in the face of the country's military responsibilities.

Expansion plans shelved

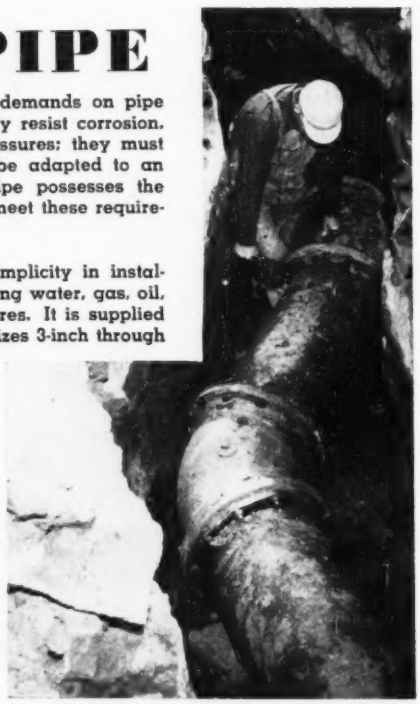
Armco Steel Corp. has shelved plans for more than $45 million worth of construction "because of taxes and the uncertainties resulting from the wage-price situation in the steel industry", W. W. Sebald, president, told an annual meeting of Armco stockholders.

MONO-CAST PIPE

Modern usage is continually making increasingly severe demands on pipe lines. Underground mains must do much more than merely resist corrosion. They must convey greater volumes, at higher internal pressures; they must withstand vastly increased external loadings; they must be adapted to an ever-widening range of service conditions. Mono-Cast Pipe possesses the exceptional physical strength and uniformity necessary to meet these requirements.

Long service with minimum maintenance, coupled with simplicity in installation, make Mono-Cast Pipe a favorite for systems conveying water, gas, oil, sewage or other liquids under high, medium or low pressures. It is supplied with or without tar coating, cement or Enameline lining in sizes 3-inch through 48-inch. Mono-Cast Pipe serves equally well beneath crowded city streets or in cross country installations.

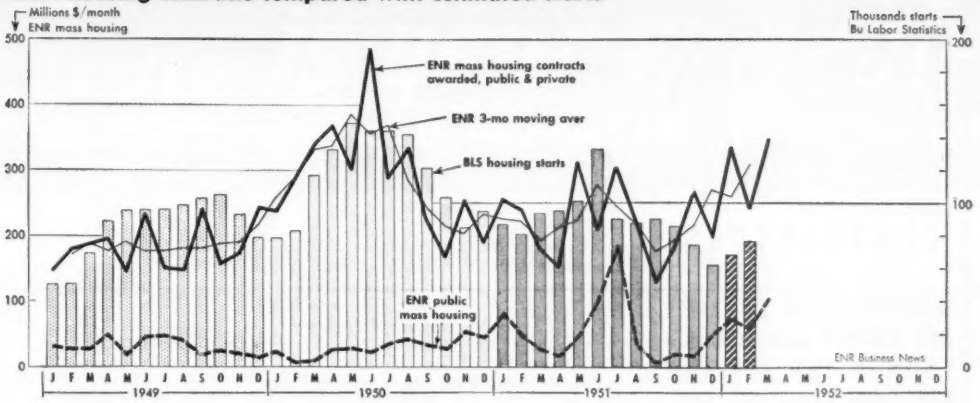
Since the beginning of our Company, nearly half a century ago, ACIPCO has constantly worked hand in hand with engineers, contractors and superintendents in solving piping problems in their respective fields. Refer your next piping job to ACIPCO, and utilize the extensive manufacturing facilities of the largest individual cast iron pipe foundry in America.



AMERICAN CAST IRON PIPE COMPANY

Birmingham 2, Alabama

Mass housing contracts compared with estimated starts


Millions $/month
ENR mass housing
Thousands starts
Bu Labor Statistics
500
400
300
200
100
0
200
100
0
ENR mass housing contracts awarded, public & private
ENR 3-mo moving aver
BLS housing starts
ENR public mass housing
ENR Business News
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
1949
1950
1951
1952

Housing nears record pace

ENGINEERING NEWS-RECORD contract awards for the first four months of this year indicate that housing may come close to, or even match, the record level of 1950 when contracts were let for $3,476 million in private and public housing.

To date in 1952, private and public mass housing contract awards add up to $1,244 million. That is 50% more than the total reported for the first four months of last year and slightly more than the $1,238 million racked up in the same period of 1950.

While private housing accounts for the biggest share of the dollar volume, public housing projects totaling $328 million show the biggest percentage gain.

Private contracts are 41% above the $648 million figure for last year, compared to public housing contracts now running 79% above the $184 million for 1951, in comparable periods.

Even the government is now taking another look at its first-of-the-year prediction of 800,000 private housing starts this year.

Last week, Raymond M. Foley, administrator of the Housing and Home Finance Agency told a meeting of the Detroit Mortgage Bankers Assn. that the 800,000 estimate is now being revised.

Improved materials supply means that the nation's homebuilders will not be bound to the 800,000 limit on starts, Foley said.

"Somewhat larger production can now be supported, if it does not result in inflationary pressures," Foley stated. "Starts for the first quarter of the year would indicate a production ranging well above 800,000, if the rate continues."

Foley added that there will be enough mortgage funds available to support such production. But the financing may be spotty, the HHFA chief warned.

With the outlook bright for private housing, only public housing remains a question mark. And that will be determined by Congress.

Building permits decline 18.6% under year ago

March building permits for 215 cities had a total valuation of $351.4 million, according to Dun & Bradstreet, Inc. This was 18.6% under the figure for March, 1951, and marked the sixth straight month to show a year-to-year decline, Dun & Bradstreet said.

The March total of $351.4 million was 11.4% above February.

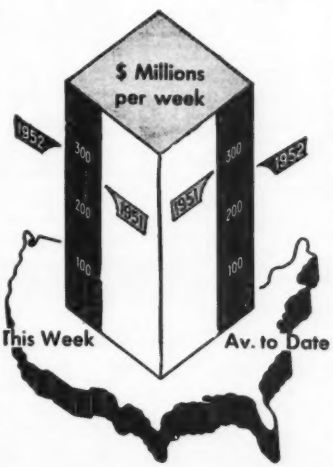
Plant expansion to ease crawler tractor supply

William A. Roberts, president of Allis-Chalmers Manufacturing Co., said that the present tight supply of crawler tractors will be eased when Allis-Chalmers plant expansion at Springfield, Illinois, is completed.

The plant expansion was approved by the Defense Production Administration on March 1. It will permit a 50% increase in production capacity for crawler tractors and road equipment made by Allis-Chalmers.

Activity This Week

As reported to ENR
(in millions of dollars)



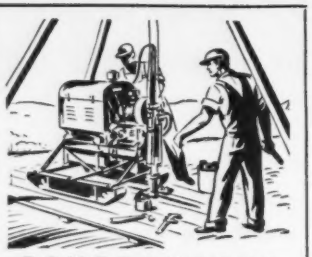
Contracts by type of work

	This Week	Cumulative 18 wks 1952	1951	% chge
Waterworks	$1.9	$83.4	$81.0	+3
Sewerage	2.8	75.6	112.1	−33
Bridges	9.6	124.0	102.0	+22
Highways	31.4	446.9	338.8	+32
Earthwork, waterways	38.6	219.4	208.1	+5
Buildings:				
Public	25.4	562.6	849.6	−38
Housg., pub.	9.9	338.0	188.6	+79
Housg., priv.	86.2	1,002.5	709.5	+41
Commercial	22.1	189.1	227.1	−17
Industrial	40.6	1,008.2	1,889.7	−47
Unclassified	19.7	446.9	551.9	−19
Total	**$288.2**	**$4,496.6**	**$5,258.4**	**−14**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR COST INDEX

Index Base = 100		1913	1926	1949
Constr. cost	Apr. '52	554.12	266.36	116.16
Bldg. cost	Apr. '52	407.94	220.52	115.96
Volume	Mar. '52	509	207	147



CONTRACTORS
for
DIAMOND CORE DRILLING
DRY SAMPLE SOIL BORINGS
FOUNDATION TESTING
PRESSURE GROUTING, ETC.
anywhere in the world

Sixty years of successful experience, backed by superior equipment and ample financial resources, constitute your best possible assurance of satisfactory service. Estimates submitted promptly on request. Manufacturers, also, of Diamond Core Drilling Machines and complete accessory equipment.

SPRAGUE & HENWOOD, Inc.
Dept. E, SCRANTON 2, PA.
New York - Philadelphia - Pittsburgh

Would you use 1925 construction equipment today? No. Why not change over and equip your jobs with modern office trailers and cut costs.

CONTRACTORS' OFFICE TRAILER
Models 24'—28'—35'
Price $2100. to $3500.
Birch finish, drafting table, 2 built-in desks with letter files & drawers, other conveniences. Write for pictures and plans.
TRAILER VILLAGE SALES, INC.
8642 Pulaski Highway, Baltimore 21, Md.
Phone: Essex 2233

High Grade Hardwood
SURVEYOR STAKES
Stained Yellow Bound with Steel Strapping

	Per 100	In 1000 Lots Per 100
2x2—12"	$ 7.15	$ 6.50
—15"	8.80	8.00
—18"	9.60	8.70
—24"	11.50	10.45
—36"	16.50	15.05

GRADE STAKES

1x2—12"	5.60	5.10
—15"	5.75	5.20
—18"	5.80	5.25
—24"	6.90	6.25
—36"	9.70	8.80

Prices net F.O.B. Cumberland, Md.
BUCHANAN LUMBER CO.
CUMBERLAND, MD.

High steel priority speeds N. J. lift-bridge bidding

Armed with high steel priority because of critical traffic conditions, New Jersey State Highway Department got close bidding April 1 on its $4.7 million Hackensack River lift bridge superstructure on Route 25. American Bridge Division, U. S. Steel Company, the successful contractor, was only 2% below the second low bid. E. W. Kilpatrick is state highway engineer and Morris Goodkind, director and chief bridge engineer.

The bridge has an 80-foot vertical lift, 10 plate girder approach spans and a 200-ft main crossing span. A total of nearly 7,000 tons of steel will be needed for the 1,600-ft superstructure which will carry two 36-ft roadways over the river. Located between Jersey City and Kearny, it is planned to eliminate the serious traffic tieups on one of New Jersey's most heavily traveled cross-state highways.

Minimum hourly wages to be paid common laborers are $0.75; semi-skilled, $1.00; and skilled, $1.50.

Completion of the bridge is set for December 15, 1953.

Bidders include:

Superstructure

1C	American Bridge Div., U. S. Steel Co., Pittsburg	$4,734,702
2	Bethlehem Steel Co., Bethlehem	4,834,601

Bids: 4-1-52 Items	Unit	Quantity	Unit Prices 1C	2
Concrete, class B	cy	2,764	$100.00	$108.00
class C, cntr wts	cy	576	70.00	62.00
Reinf steel	lb	599,389	0.22	.023
Struct crbn stl lift span	lb	1,645,200	0.2426	0.2450
towers	lb	3,388,850	0.2868	0.2820
app & flk spns	lb	6,039,674	0.1898	0.1750
silicon stl spn towr	lb	887,400	0.2555	0.2975
Cast stl shoes scuppers	lb	147,316	0.4472	0.4450
Miscellaneous metal	lb	62,233	0.4545	0.5630
Lift span rdway grating	sf	15,930	6.46	6.60
sidewalk flooring	sf	3,910	6.35	6.40
Mach contr & stor houses	ls	1	$135,000	$141,500
Wire ropes & rope sockets	lb	93,200	$0.5208	$0.6130
connecs & deflectors	lb	71,000	1.001	1.20
Sheaves, shafts, bear	lb	361,800	0.5976	0.65
Span operat equip	lb	137,230	1.46	1.40
Guide rollers & air buf	lb	25,800	1.2752	1.35
Elevators	ls	1	$37,000	$37,400
Elec equip lift span	ls	1	530,000	610,000
Roadway warning gates	ls	1	4,030	4,175
lighting	ls	1	25,000	22,100
Bridge operator	ls	1	1,500	11,100
Water service line	ls	1	12,000	12,200
Field office	ls	1	7,300	14,800

The award for the substructure was made in February to J. Rich Steers for $1,840,306. The specifications call for steel bearing piles for the piers and abutments. Bidders include:

Substructure

1C	J. Rich Steers, Inc., New York	$1,840,306
2	Spearin Preston & Burrow, Inc., New York	2,195,606

Bids: 1-29-52 Items	Unit	Quantity	Unit Prices 1C	2
Foundation exc	cy	584	$4.25	$5.00
Untreated piles	lf	74,620	1.55	1.70
Stl bearing piles, 12"	lf	10,157	7.00	7.00
14"	lf	20,300	8.20	8.50
Concrete, class B	cy	17,063	47.00	57.00
class C	cy	4,770	46.00	45.00
Granite protection	cy	716	255.00	180.00

UNIT PRICES

Bids: 1-29-52 Items	Unit	Quantity	Unit Prices 1C	2
Reinf stl in struct	lb	847,224	0.19	0.19
Waterproofing	sf	476	1.50	1.50
Treated timber struct Mfbm		67	600.00	800.00
Treat tmbr piles-fend	lf	17,160	2.90	2.70
Structural steel	lb	25,290	0.25	0.40
Concrete parapet	lf	32	31.00	40.00
Field office	ls	1	8,740.00	8,000.00
Rdway exc, earth	cy	7,839	2.60	3.00
Excavation, wet	cy	38,574	1.25	1.70
borrow	cy	89,375	2.00	1.60
pavement	sy	12	8.00	2.00
Breaking pavement	sy	191	3.00	2.00
Pave surf remov, BC	sy	162	1.90	1.50
Corr met cul pipe, bit cmt 36"	lf	418	19.00	15.00
Manhole	ea	1	920.00	500.00
Extra depth manhole, below 8 ft	lf	4	150.00	100.00

Grain elevator, La.

The new 2,500,000 bushel public grain elevator at New Orleans will be built and equipped for an over-all investment of $2.57 per bushel—capacity. The Board of Commissioners of the Port of New Orleans, J. A. McNiven, chief engineer, on bids received Jan. 18, 1952, awarded foundations and dumper pits to Blount Brothers Construction Co., Montgomery, Ala. for $791,000 and the superstructure and equipment to Fegles Construction Co., Inc., Minneapolis, Minn. for $5,635,000. Jones-Hettelsater Construction Co., Kansas City, Mo. are the consulting engineers.

This new elevator is located upstream from the Board's existing grain elevator. It will double the port's present grain storage and rail and barge unloading facilities.

Bulk cement in carload lots, fob New Orleans was $2.90 plus switching charges, sand was $1.82 and gravel $2.32 per ton when bids were taken. Lumber at the mill cost $92/M for pine 2x4s s4s and $100/M for 1x6s & 1x8s. Carpenter wages were $2.06 per hr, hoisting engineers, $2.325, electrical workers, $2.50, steam fitters, $2.45 and common laborers $1.10.

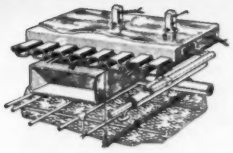
Superstructure and equipment include 81 bins 85 ft high, 20 ft diameter; two car and two marine leg receiving lofters and four shipping lofters, with space for two additional; five basement conveyors, with space for three more; and five distributing belts, with space for one more. All lofters and conveyor belts will have a capacity of 30,000 bushels an hour each. The workhouse will be equipped with the necessary garners, scales and spouting.

Principal features of this elevator and their relative cost are:

Bids: 1-18-52 Items	Total Cost	% of Total	$ per bu
Total	$6,426,000	100.0	$2.57
Foundations & dumper pits	791,000	12.3	0.32
Superstructure & equip	5,635,000	87.7	2.25
Storage	1,169,316	18.2	0.47
Work house	1,669,953	26.0	0.67
Equipment	1,748,526	27.2	0.70
Electrical (inc. motors)	597,910	9.3	0.24
8—elevator lofter legs	449,295	7.0	0.18

Time is your variable

ROBERTSON PRE-ENGINEERED MATERIALS CUT CONSTRUCTION COST



Q-FLOORS

two men can lay 32 sq. ft. in 30 seconds!

These are steel subfloors. They are installed as fast as the frame is erected. Therefore they form immediate and permanent platforms for all subcontractors. By properly organizing the work, a contractor can cut 15 to 20% off over-all construction time. The architect saves a great deal of drafting time.

The steel cells of Q-Floor become raceways for all electrical systems. An electrician drills only a small hole and installs an outlet on any six-inch area of floor in a matter of minutes. Desks, business machines and partitions can be located with complete freedom, after tenants move in.

Q-PANELS

50 sq. ft. of insulated, finished wall in 9 minutes!

Q-Panels are only 3″ thick but have greater insulation value than a 12″ masonry wall. They arrive at the site cut to fit and are quickly attached to the steel frame.

The inside surface is a metal sheet, then comes insulation, then the outer skin of fluted aluminum, Galbestos, stainless or metal-coated steel, depending upon the utility and architectural requirements.

Q-GALBESTOS

METAL SIDING & ROOFING enables workmen to cover up to 2½ times as much area as competitive materials.

Galbestos metal is the ideal material for corrosive industrial exposures, withstanding the most extreme climatic conditions, and requires no maintenance.

Galbestos is steel to which asbestos felt is metallically bonded. The felt is then impregnated with asphalt and weatherproofed. Available in various forms, in two standard widths and in lengths up to 12 feet. Galbestos has been tested and classified by Underwriters' Laboratories, Inc., and Factory Mutual Laboratories. It is available in black or maroon or can be field painted.

Galbestos roofing and siding is fastened by the exclusive Robertson Top-Speed Method, a completely new system which eliminates all interior scaffolding. This is why Galbestos is faster to erect. It can be insulated by an equally fast method, greatly reducing construction cost for heated buildings.

WHAT WE REALLY MAKE IS TIME

WRITE FOR THESE FREE CATALOGS

1. Q-Floors
2. Q-Panels
3. Galbestos
4. Top-Speed Fastening for Galbestos
5. Top-Speed Insulation for Galbestos

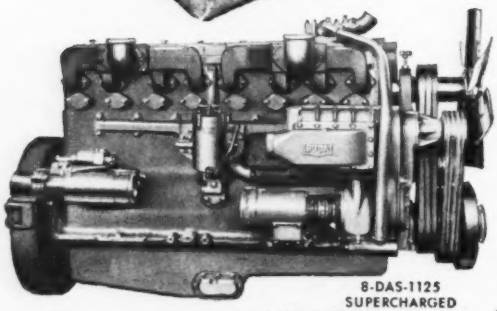
H. H. ROBERTSON CO.

2420 Farmers Bank Building
Pittsburgh 22, Pennsylvania

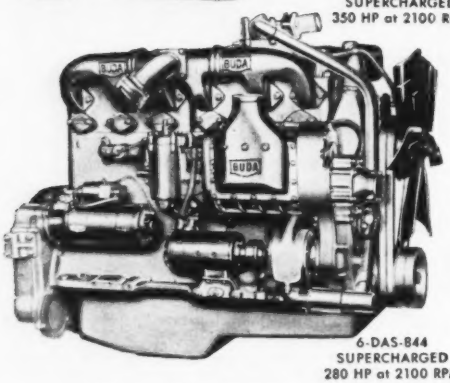
Offices in ALL Principal Cities in the U. S. A. and Canada

World-Wide Building Service

6-DA-779
185 HP at 2100 RPM



8-DAS-1125
SUPERCHARGED
350 HP at 2100 RPM



6-DAS-844
SUPERCHARGED
280 HP at 2100 RPM

pick BUDA DIESELS and be SURE YOUR EQUIPMENT PAYS A PROFIT

Take all the luck you can get . . . but be *sure* your power is right. Pick Buda Diesels for shovels, wagons, scrapers, dozers and trucks and you can count on lower operating costs, less maintenance and less downtime.

Buda engines are heavy-duty built with a reserve of power for extra load requirements . . . are carefully engineered with higher torque at proper speeds to give ideal working performance . . . and are precision designed and performance-proved to give long life (6000 hrs. average) operation between overhauls.

Ask your nearby Buda Engine Distributor to give you complete details. Write for Bulletins and data.
The Buda Company, Harvey, Illinois. 8C-21

...there is a BUDA DIESEL for every need

BUDA

Manufacturers of Diesel and Gasoline Engines, Maintenance of Way Products, Lifting Jacks, Earth Drills and Material Handling Equipment

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.
ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 5 Connecticut May 6 Massachusetts
STREETS AND ROADS
May 5 Connecticut

BIDS ASKED—BUILDINGS

Mass., Springfield—SYNAGOGUE and CHURCH—B.A. 5/5—Congregation Beth El, 150 Fort Pleasant St., synagogue and church, Dickinson St. opposite Forest Park, $400,000, Percival Goodman, 19 E. 48 St., New York, N. Y., archt. CD 12/10.

Mass., Rockland—SCHOOL—B.A. 5/16—Town, Supt. Schools, McKinley School, Union St., school, Memorial Park. $450,000. Plans deposit $50, refundable. Thomas Worcester, Inc., 84 State St., Boston, archt. CD 11/14.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Petricca Constr. Co.,** P.O. Box 1145, Pittsfield, Mass. LB, $316,252, Plan A-1 plus Closure A; $383,985, Plan A plus Closure A; $429,233, Plan A plus B Closure B; $476,697, Plan A plus B Plan C plus Closure C, channel imprvs., North Adams, Eng. 30-075-52-62, MASSACHUSETTS. U. S. Eng., 80 Lafayette St., New York, N. Y. Bids Apr. 15. CD 4/8.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Harris Structural Steel Co., Inc., 419 4 Ave. New York, N. Y. LB $2,151,969. est. $1,200,000. Contr. H-2b steel superstructure for elevated hy. structure Oliver St. to Commerce St.
Bethlehem Steel Co., 75 Federal St., Boston, Mass. LB $4,310,143. est. $2,400,000. Contr. H-2 portion steel superstructure North to Oliver Sts.; LB $2,125,945., est. $1,200,000.,Contr. H-2a portion steel superstructure North to Commerce Sts.;
V. Barletta Co., 10 Whipple Ave., Roslindale, Mass. LB $2,935,218, est. $1,800,000. Contr. C-3, D-3, H-3 deck electrical work, snow melting sys. for single and double deck elevated hy. structure J. F. Fitzgerald Expressway, Charles River Bridge to Oliver St. Central Artery. Bids Apr. 22. CD 3/26.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Boston Housing Auth.,** 230 Congress St., Boston, Mass., cancelled bids to have been opened May 16, 259 housing units, Wood Estate, Galvin Blvd., Proj. Mass 200-10, Dorchester, BOSTON, MASS. est. $2,850,000. CD 4/22.

▲ **A. Cefalo & Sons, Inc.,** 42 Bennett St., Lynn, Mass. CA $2,114,000, est. $1,750,000. HOUSING Proj. Mass. 23-2, Adams and Fayette Sts., LYNN, MASS. Lynn Housing Auth., 455 Garfield Ave., Lynn, Mass. CD 3/25, under LB.

▲ **John E. Pringle Co., Inc.,** 475 Fifth Ave., New York, 17, N. Y., CA, Est. $9,000,000-$10,000,000, general contract HOUSING DEVELOPMENT, incl. 800 homes, southwestern Fairfield County, GREENWICH, CONN. Home Owners Mutual Enterprises, Inc., 52 Vanderbilt Ave., New York, N. Y. Harvey Wiley Corbett, 1270 Avenue of the Americas, N. Y., 20, N. Y., consult. archt. O'Hara, Hedlander & Edson, 45 E. Putnam Ave., Greenwich, Conn., archts.

George L. Hickey, Inc., 13 Spring St., Stamford, Conn., LB, $556,890, N. Mianus SCHOOL addns., alterations GREENWICH, CONN. Town, Supt. Schools, Greenwich, Conn. Bids Apr. 15. CD 4/3.

▲ **Mondelci & Benvenuti,** 16 Elm St., New London, Conn. LB, $1,096,000, Central High SCHOOL addn., NEW LONDON, CONN. City Municipal Bldg., New London, Conn. Bids Apr. 16. CD 4/7.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 20 New Jersey
STREETS AND ROADS
May 13 New Jersey May 15 New York

▲† **Pennsylvania**—B.A. 5/28—U. S. Eng., 121 N. Broad St., Phila., dredging Schuylkill River, Phila. and Norristown, Phila. and Montgomery Counties. $2,000,000. CD 4/16.

BIDS ASKED—BUILDINGS

Pa., State College—MINERAL SCIENCES—B.A. 5/21—General State Auth., 18 and Herr Sts., Harrisburg. Mineral Sciences Bldg. addn. at Pennsylvania State College. $660,000. Plans deposit $10. Nicklas Sholtar Assoc., 2605 Beale Ave., Altoona, archts. CD 12/11/50.

SOON LETS CONTRACT—BUILDINGS

Pa., Phila.—HOSPITAL—Northeastern Hospital, Allegheney Ave. and Tulip Sts., soon lets contract hospital addn., laundry, boiler house, and stack, paving work. $850,000. The Ballinger Co., 121 N. Broad St., archts. CD 12/6.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW JERSEY—State Hy. Dpt., State Hy. Office Bldg., Trenton,
Union Bldg. & Constr. Corp., 631 Main St., Passaic, N. J. LB, $964,134, paving 2.708 mi. Route 4 Parkway Sections 6F, 7E and 8C from Centennial Ave. to Galloping Hill Rd., Cranford Twp. and Borough of Kenilworth, Fed. Proj. U-188 (26), Union Co. Bids Apr. 17. CD 3/28.

Square Constr. Co., 115 S. Haven St., Baltimore, Md., LB $875,010, high level cutoff intercepting sewer, 60th St., PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Samuel S. Baxter, c/o owner, water comr. Bids Apr. 22. CD 3/27.

BUILDINGS

LOW BIDS AND CONTRACTS

Oak Park Homes, c/o Stanley Klein, archt., 89-31 161 St., Jamaica, N. Y. Owner Builds. $750,000. (2nd sect). 50 HOUSES, 228 St. between Horace Harding and Northern Blvds., BAYSIDE, N. Y.

University Gardens Homes, c/o Norman Dimen, archt., 67 Middle Neck Rd., Great Neck, N. Y., Owner Builds. $500,000. 12 HOUSES, Somerset Dr. North, GREAT NECK, N. Y.

▲ **Park Terrace Estates,** c/o Caleb Hornbostel, archt., 80 W. 40 St., New York 18, N. Y. Owner Builds. $4,000,000. 430 HOUSES on tract on Jerusalem Ave. between Old Country Rd. and Hempstead Turnpike, HICKSVILLE, N. Y.

Briarwood Park Homes, c/o Alwin Cassens, Jr., archts., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. Approx. $800,000. 80 HOUSES, Hicksville Rd., north of Southern State Parkway, MASSAPEQUA, N. Y.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction
(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
B.A. Bids Asked
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

▲ **Northridge-at-Massapequa Homes,** c/o Matern & York, archts., 90-04 161 St., Jamaica, N. Y. Owner Builds. $1,500,000. 120 HOMES, 26-acre tract on Hicksville Rd., MASSAPEQUA, N. Y.

Northridge Estates, c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. Approx. $500,000. 47 HOUSES, Meadowbrook Rd., NORTH MERRICK, N. Y.

▲ **Preview Homes,** c/o Herbert J. Burmeister, archt., 89-30, 161 St., Jamaica, N. Y. Owner Builds. $1,250,000. 128 HOUSES, Hicksville Rd. north of Southern State Parkway. PLAINEDGE, N. Y.

▲ **East Harbor Hills,** c/o Schulman & Soloway, archts., 100-15 Queens Blvd., Forest Hills, N. Y. Owner Builds. $3,000,000. 118 HOUSES, Glen Cove Rd., ROSLYN, N. Y.

Academy Homes, c/o Benjamin R. Levinson, archt., 168-25 Hillside Ave., Jamaica, N. Y. Owner Builds. $500,000. 50 HOUSES, 147 Ave. and 230 St., SPRINGFIELD GARDENS, N. Y.

▲ **Guildford Homes,** c/o Schulman & Solway, archs., 100-15 Queens Blvd., Forest Hills, N. Y. Owner Builds. Approx. $1,500,000. 146 HOUSES on tract at Morris Gate Ave. and Sunrise Hy., WANTAGH, N. Y.

▲ **George A. Fuller Co.,** 597 Madison Ave., New York 22, N. Y., CA. Approx. $9,000,000. 3 story OFFICE bldg., V-shaped fireproof and air-conditioned, North St., WHITE PLAINS, N. Y. General Foods Corp., 250 Park Ave., New York 17, N. Y. Voorhees, Walker, Foley & Smith, 101 Park Ave., New York 17, N. Y., archts.

▲ **Rockaway Knolls Homes,** c/o Rudolph L. Novak, 713 Main Ave., Clifton, N. J., Owner Builds. $1,500,000 160 HOUSES on tract on Longview and Far View Rds., ROCKAWAY TWP., N. J.

Pershing Park Homes, c/o Louis M. Stauber; archt., Union, N. J., Owner Builds. $800,000, 100 HOUSES on tract at MacArthur Ave., SAYREVILLE, N. J.

William R. Gallagher, Jeffersonville, Pa., Separate Contracts. $524,000. RESIDENTIAL DEVELOPMENT, Burnside Estates, JEFFERSONVILLE, PA.

Madway Engr. & Constr. Co., 304 Levering Mill Rd. Bala Cynwyd, Pa., Separate Contracts. $488,000. RESIDENTIAL DEVELOPMENT, Rte. 202 KING of PRUSSIA, PA.

▲ **Baton Constr. Corp.,** 1717 Sansom St., Phila., Pa., CA $2,000,000. RESEARCH LABORATORY, PAOLI, PA. Burroughs Adding Machine Corp., 511 N. Broad St., Phila., Pa. Walker-Yeomans, 117 S. 17 St., Phila., Pa., engrs.

Wadsworth Constr. Co., 132 Garrett Rd., Upper Darby, Pa., Separate Contracts. $600,000. RESIDENTIAL DEVELOPMENT, Malth St., PHILA., PA.

▲ **Meitner & Co.,** 5546 Ridge Ave., Phila., Pa., CA $8,500,000. RESIDENTIAL DEVELOPMENT, Ridge Ave. and Livezey Lane, PHILA., PA. Green Valley Acres, c/o contractor. Henry S. Berg, 1411 Walnut St., Phila., Pa. archt.

▲ **Henry Berman,** 6032 Market St., Phila., Pa., Separate Contracts. $1,330,000. RESIDENTIAL DEVELOPMENT, Bristol and Palmetto Sts., PHILA., PA.

Barclay White & Co., 22 N. 36 St., Phila., Pa., CA, $600,000. HOME addn., PHILA., PA. Baptist Home of Phila., Roosevelt Blvd. and Pennypack Circle, Phila., Pa. Bids Mar. 13. CD 3/17.

Roberts Constr. Co., 1505 Race St., Phila., LB $415,000. 2 DORMITORIES, PHILA., PA. LaSalle College, 20 St. and Olney Ave., Phila. Carroll Grisdale & Van Alen, 204 W. Rittenhouse Square, Phila., Pa., archts. Irving S. Towsley, 1414 S. Penn Square, Phila., Pa., engrs. CD 12/26/50.

▲ **Stone & Webster Engineering Corp.,** 49 Federal St., Boston, Mass., CA $10,000,000. design and construct, mfg. PLANT extens., PHILA., PA. Barrett Div., The Allied Chemical & Dye Corp., Margaret and Bermuda Sts., Phila., Pa. CD 6/27.

McCloskey & Co., 1620 W. Thompson St., Phila., Pa., CA $888,000. Joint HIGH SCHOOL, for Plymouth-Whitemarsh Joint School Bd., PLYMOUTH MEETING, PA. Public School Building Auth., 101 S. 25 St., Harrisburg, Pa. Bids Apr. 3. CD 4/8, under LB.

▲ **Henry A. Knott, Inc.,** 2107 N. Charles St., Baltimore 18, Md. CA. $3,174,000, est. $3,000,000, 292 unit Claremont HOUSING, 36 buildings, 2 story, part basmt., brick, BALTIMORE, MD. Baltimore Housing Auth., 709 E. Eager St., Baltimore Md. Bids Feb. 14, awarded Apr. 17. CD 2/27, under LB.

Chas. E. Brohawn & Bros., Cambridge, Md. CA $749,163. brick, concrete, steel Dorchester County High SCHOOL, CAMBRIDGE, MD. Dorchester Co., Bd. Educ., Cambridge, Md. Malone & Williams, Salisbury, Md., archts.

▲ **Gunnell Constr. Co.,** 1401 K St. N.W., Wash., D. C. LB, $1,744,000. Industrial HOME for Children, LAUREL, MD. Dist. Comrs., District Bldg., 14 and Penn Ave. N.W., Wash., D. C. Bids Apr. 22. CD 4/18.

Irwin & Leighton, 1505 Race St., Phila., Pa. CA $500,000. 1 story, brick packing PLANT addns., POCOMOKE CITY, MD. Birds-Eye Div. General Foods Corp., Pocomoke City, Md. Vince Britt, 383 Madison Ave., New York, N. Y., ch. engr.

Morris Pollin & Sons, 931 Longfellow St. N.W., Wash., D. C., Owner Builds, $560,000, 14 three story, brick, cinder block APARTMENTS, incl. 168 units, Hartford St. and Gainesville St. S.E., WASH., D.C. Berla & Abel, 1636 Connecticut Ave. N.W., Wash., D. C., archts.

▲ **Northwest Dover Homes Development Corp.,** c/o Taylor Constr. Co., North du Pont Highway, Dover, Del., Separate Contracts, $1,500,000, RESIDENTIAL DEVELOPMENT, Walker Rd., etc., DOVER, DEL.

▲ **Brookside Park Associates,** Newark, Del., Separate Contracts, $1,500,000, RESIDENTIAL DEVELOPMENT, Playground and Shopping Center, NEWARK, DEL.

▲ **E. I. du Pont de Nemours & Co.,** Nemours Bldg., Wilmington, Del., Own Forces, $2,000,000 new Haskell LABORATORY for Industrial Toxicology, NEWARK, DEL. CD 10/24.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES

May 6 West Virginia — June 20 Tennessee

STREETS AND ROADS

May 6 West Virginia — May 7 Louisiana
May 9 Kentucky

BIDS ASKED—BUILDINGS

Fla., Jacksonville—WAREHOUSE—B.A. 5/15—Farquar Mchy Co., 2144 Market St., warehouse facilities extension, $600,000.

Ala., Troy—COURTHOUSE—B.A. After 5/15—Pike Co., court house, $500,000, Minch, Kershaw & Crum, 230 S. Perry St., Montgomery, archts.

▲ **Miss., Jackson**—HOSPITAL—B.A. About 7/15—State Bldg. Comm., New Capitol Bldg., 400,000 sq. ft. T-shaped medical college and teaching hospital, $6,500,000. E. L. Malvaney, Millsaps Bldg., R. W. Naef, Masonic Temple, and N. W. Overstreet & Assoc., 201 N. Lamar St., archts. CD 10/9/50.

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

▲ † **Doyle & Russell,** Central Natl. Bank Bldg., Richmond, Va., LB $3,122,000, supersonic tunnel, incl. a laboratory and office bldg., LANGLEY FIELD, VA. National Advisory Committee for Aeronautics, Langley Field, Va.

▲† **Wright Contg. Co.,** 504 25 Ave., Columbus, Ga., CA, $2,206,589, parking apron and overlays at Hunter Air Force Base, Inv. 52-42, SAVANNAH, GA. U. S. Eng., Post Office Bldg., Savannah, Ga. Bids Apr. 10. CD 4/18, under LB.

▲ **FLORIDA**—State Hy. Dpt., Municipal Auditorium, Lakeland.

H. E. Wolfe Constr. Co., St. Augustine, Fla., LB $539,175, clearing, grubbing, grading 5 bridges, small drainage structures on State Road 55, F. 016-2 (6), Dixie Co. CD 3/27; LB, $739,260, grading, stabilizing, paving, constr. 1 bridge, 2 culverts drainage structures, State Road 15, F 003-7 (2), Nassau Co.; LB, $91,600, grading Road 706, Job 8902-102, Martin Co.;

W. L. Cobb Constr. Co., 1102 N. 22 St., Tampa, Fla., LB, $175,915, grading, roadway, stabilizing, paving, small drainage structures, State Road S-335, S-7 (5), Levy Co.; LB, $214,054, grading, paving, Road 29, Job 0308-197, Collier Co.;

Smith Eng. & Constr. Co., W. Pensacola St., Pensacola, Fla., LB, $174,638, grading, paving Road S 191, 5856-150, Santa Rosa Co.;

Ewell Eng. & Constr. Co., Lakeland, Fla., LB, $586,883, grading, stabilizing, paving, small drainage structures State Road 600, UI-007-1 (2), Job 1610 200, Polk Co.;

J. D. Manly Constr. Co., Leesburg, Fla., LB, $75,936, grading, paving Road S-466 (A), Job 1153-101, Lake Co.;

Polk Constr. Co., Lakeland, Fla., LB, $208,473, grading, paving Road 578, Pasco Co.;

Marion Constr. Co., Ocala, Fla., LB, $79,911, grading, paving Road S-466-A, Job 1153-101, Lake Co.;

L. L. Hall Constr. Co., Orange Park, Fla., LB, $108,320, paving, drainage structures Road S-218, Job 7153-150, Clay Co.;

C. T. Stockton, Inc., 660 N.W. 54 St., Miami, Fla., LB, $150,505, reworking existing base, paving Road S-25-A, Job 8753-150, Dade Co. CD 4/9;

Duval Eng. & Constr., 1746 E. Adams St., Jacksonville, Fla., LB, $1,487,278, grading, paving 3 concrete, steel overpass structures one culvert drainage structures, on State Rds. 10A and 115 U-503 (1), Duval Co. Bids Apr. 17. CD 3/27.

▲ † **Paul Smith Constr. Co.,** Box 87, Tallahassee, Fla., LB, $3,549,062, airmen's quarters and mess facilities at Main Field, Inv. No. 52-31, EGLIN AIR FORCE BASE, FLA. U. S. Eng., P. O. Box 1169, Mobile 7, Ala. Bids Apr. 3. CD 3/13.

▲ † **Greenhut Constr. Co.,** 23 South "A" Pensacola, Fla., LB, $1,413,799, airmens quarters and mess, administration bldg. at Auxiliary Field No. 91, Inv. 52-32, EGLIN AIR FORCE BASE, FLA. U. S. Eng., P. O. Box 1169, Mobile 7, Ala. Bids Mar. 27.

▲ † **R. E. Clarson, Inc.,** 1930 13 Ave. N., St. Petersburg, Fla., LB, $1,671,000, engineering bldg., EGLIN AIR FORCE BASE, FLA. U. S. Eng., P. O. Box 1169, Mobile 7, Ala. Bids Apr. 10. CD 2/6.

▲ **LOUISIANA**—State Hy. Dpt., Highway Office Bldg., Baton Rouge.

Texas Bitulithic Co., Burma Rd., New Orleans, La., LB $658,636, patching, wid'n existing c. conc., thirteen 20 ft., four 20 ft. concrete slab span bridges, bit. wearing course, surf. 11.79 mi. Arcadia-Gibsland Hy., State Rte. 4, S. P. 1-06-14. Bienville Parish;

T. L. James & Co., Ruston, La. LB $853,967. patching, wid'n. existing c. conc., bit. wearing course, surf. 16.714 mi. Delhi-Tallulah Hy., State Rte. 4, S. P. 2-03-17 and 2-04-15, Richland and Madison Parishes;

Sam Finley, Inc., 292 North Ave. N. W., Atlanta, Ga. LB $564,249. patching, wid'n. existing c. conc., bit. wearing course surf. 10.631 mi. Iowa-Welsh Hy., State Rte. 2, S. P. 3-06-09, 3-06-08 and 3-07-06, Jefferson Davis Parish. Bids Apr. 16. CD 4/4 and 4/2.

BUILDINGS
LOW BIDS AND CONTRACTS

▲ **Irons & Reynolds, Inc.,** 1724 H St., N. W. Wash., D. C. CA. $2,389,480, Norview HIGH SCHOOL, PORTSMOUTH, VA. Norfolk Co. Bd. Educ., Norfolk, Va. Bids Mar. 27. CD 2/14 under Va., Norfolk.

Henry Yaschik, 19 Broad St., Charleston, S. C. Owner Builds. Approx. $400,000. RESIDENCES, CHARLESTON, S. C.

O. P. Woodcock, W. Monroe St., Jacksonville, Fla., LB, $500,000, Cookman Elementary SCHOOL 145, Davis St., JACKSONVILLE, FLA. Bd. P. Instruction, 605 Ocean St., Jacksonville, Fla. CD 10/10/49.

Sun Ray Homes, Inc., 1900 N.E. 182 St., Miami Beach, Fla., Owner Builds, $400,000, 40 RESIDENCES, MIAMI BEACH, FLA.

Suburban Homes, Inc., 1315 N.W. 131 St., Miami, Fla., Owner Builds, $500,000, RESIDENCES, in Breezy Heights Section, MIAMI, FLA.

MIDDLE WEST

BIDS ASKED—BUILDINGS

▲ **Wis., Rhinelander**—HOSPITAL—B.A. 5/6—Sisters of Sorrowful Mother, St., Marys Hospital, Rhinelander, 45x180 ft., 45x150 ft., rein.-con., brick tile hospital addn., $1,100,000. Theo A. Hartman, Goetz Bldg., Monroe, Wis., archt. CD 12/31.

Ind., Indianapolis—SCHOOL—B.A. 5/9—Washington Twp. Chester A. McKamey, trustee, 1015 E. 28 St., 1 story, bsmnt., irregular, brick, rein.-con., structural steel, Delaware Trade Grade School, 73 St. and Hoover Rd., $500,000. Plans deposit $50. Edward D. James, 122 E. Michigan St., Zone 4, archt. CD 2/12.

Mich., Flint—SCHOOL—B.A. 5/20—City, Bd. Educ., 2 story, bsmnt., brick, steel Gyles E. Merrill Elementary School, $500,000. Plans deposit $20. Eberle M. Smith, 153 E. Elizabeth St., Deroit, archt. CD 8/24, under LB.

▲ **Mich., Kalamazoo**—HOSPITAL—B.A. 5/21—State, A. N. Langius, dir., State Bldg. Dpt., Lansing bids for general, mechanical, electrical work, brick, steel, concrete tuberculosis hospital, $2,000,000. Plans deposit $25. Lee and Kenneth C. Black, 706 Capitol Savings Bank Bldg., Lansing, archts. CD 1/22/52.

▲ **O., Cleveland**—GARAGE and PARCEL POST ANNEX—B.A. 5/24—Owner, c/o H. A. Urban, postal inspector, Cleveland Post Office, Zone 1, 3 story postal garage and parcel post annex to be built by private interests and leased to U. S. Post Office, Cleveland, for 20 years. $3,000,000. CD 12/5/49, under Public BUILDINGS.

SOON LETS CONTRACT—BUILDINGS

▲ **Ill., Chicago**—STUDENT and FACULTY APARTMENT Illinois Institute of Technology, 3800 S. Federal St., soon lets contract student and faculty apartment bldg., 32 and state Sts., $1,000,000. Pace Associates, 53 W. Jackson St., Zone 4, archts. CD 12/1/47.

Ill., North Chicago—BUILDINGS—Fansteel Metallurgical Corp., North Chicago, soon lets contract two bldgs. on premises, refiners of columbum and titanium $400,000. A. Epstein & Sons Co., 2011 Pershing Rd., Chicago, Zone 9, archts.

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

▲ **OHIO**—State Hy. Dpt., T. J. Kauer, dir., State Office Bldg., Columbus, Zone 15.

D. R. Smalley & Sons, Inc., 426 W. Market St., Celina, O., CA $1,847,438, est. $1,943,100, b. conc. and c. conc., paving, construct steel beam bridge with concrete deck and concrete substructure, Bridge No. TR-62-48 over Little Yankee Run; continuous steel beam bridge with concrete deck and concrete substructure, Bridge No. TR-62-87 over Yankee Creek, 5.328 mi. U. S. R. 52, Sections (4.59-9.67) F-524 (5), Trumbull Co. Bids Apr. 8. CD 4/16, under LB.

▲ **INDIANA**—State Hy. Comn., State House Annex, Indianapolis, Zone 4.

L. B. Cavett Co., 500 Shepherd St., Lockland, O., LB $200,957, est. $218,441, b. conc. resurf. State Rd. 43 in Crawfordsville and b. conc. resurf. 12.005 mi. U.S. 136 from Crawfordsville to New Ross, Montgomery and Boone Counties; LB $270,578, 10.933 mi. State Rd. 50 Brownstown to State Rd. 235. State Rd. 31 in Scottsburg and Austin, Jackson and Scott Counties;

Meshberger Bros. Corp., Linn Grove, Ind., LB $422,854, est. $479,111, c. conc. wid'n. and b. conc. resurf. 15.255 mi. west of Thurman to Ohio State Line, State Rd. 37, Allen Co.; LB, $146,539, est. $176,121, c. conc. wid'n. 0.21 mi. Bluffton, b. conc. resurf. 8.124 mi. State Rd. 1, Bluffton to Ossian Wells Co.;

Feigel Constr. Co., 800 E. Michigan St., Evansville, Ind., LB, $125,449, est. $127,522, c. conc.-b. conc. pavement and b. conc. resurf. 5.244 mi. State Rd. 62 from Chandler to Boonville and 0.89 mi. State Rd. 62 and 61 in Boonville, Warrick Co.; LB, $103,734, est. $112,406, c. conc. wid'n., b. conc. resurf. 3.201 mi. State Rd. 66, Kasson to Franklin St., Evansville, Vanderburg Co.;

Breslin Constr. Co., 1433 S. Preston St., Louisville, Ky., LB, $256,908, est. $281,543, compacted aggregate base and b. conc. resurf. 13.822 mi. State Rd. 68 from U.S. Rd. 41 to State Rd. 61 at Lynnville, Gibson and Warrick Counties; LB, $218,328, est. $241,617, compacted aggregate base, b. conc. resurf. 10.536 mi. State Rd. 68 from State Rd. 61 at Lynnville to Selvin, Warrick Co.;

Middle West Roads Co., Noblesville, Ind., LB, $84,251, est. $89,190, bit. base wid'n., 2.071 mi. and b. conc. resurf. State Rd. 48, from Jasonville to junction with State Rd. 59, Clay and Greene Counties;

Ralph Rogers & Co., S. Adams St., Bloomington, Ind., LB, $235,412, b. conc. resurf. 3.563 mi. State Rd. 37 S, State Rd. 46, in Bloomington, Monroe Co.;

Seneca Petroleum Corp., 3258 S. Canal St., Chicago, Ill., LB, $200,376, est. $250,306, b. conc. resurf. 11.215 mi. U.S. Rd. 6, west of U.S. Rd. 35, Kingsbury to La Porte-St. Joseph Co. line, Kingsbury, Laporte Co.;

Arcole Midwest Corp., Eden Hy. and Simpson, Evanston, Ill., LB $367,567, est. $406,325, c. conc. wid'n. and b. conc. resurf. 11.146 mi. State Rd. 130 from U.S. Rd. 6 in Hobart to State Rd. 330 in Valparaiso Lake and Porter Counties;

McMahan Constr. Co., Rochester, Ind., LB, $267,170, est. $279,170, bit. resurf. 16.085 mi. U.S. Rd. from U.S. Rd. 136 at Sterling, to State Rd. 47 in Park and Foundation Counties;

Mohr Constr. Co., Union St., Kokomo, Ind., LB, $219,966, est. $240,139, c. conc. wid'n. 1.26 mi. and b. conc. resurf. 11.879 mi. State Rd. 9 west of Fairmount from State Rd. 26 to E. of Missinewa River N. of Marion, Grant Co.;

W. L. Magaw, Richmond, Ind., LB, $252,696, est. $280,661, c. conc. wid'n. 8.164 mi. b. conc. resurf. 8.744 mi. State Rd. 3, Dunreith to New Castle and U.S. Rd. 40 through Knightstown, Henry Co.;

Reith-Riley Constr. Co., 311 W. Monroe St., Goshen, Ind., LB, $348,513, est. $408,146, c. conc. wid'n., b. conc. resurf. 12.209 mi. U.S. Rd. 33, Churubusco to northwest of State Rd. 109 at Wolf Lake, Noble and Whitley Counties. Bids Apr. 18. CD 3/28.

▲ **INDIANA**—State Hy. Comn., State House Annex, Indianapolis, Zone 4.

McMahan Constr. Co., Rochester, Ind., LB, $353,507, est. $416,333, 3 span 330 ft. cantilever steel truss and steel beam bridge over Big Pine Creek, approach grading, bit. compacted aggregate surf. 0.96 mi. N.W. of Attica, Warren Co.;

Kahl & Mahon, Liberty, Ind., LB, $96,052, est. $102,927 1 span 20 ft. rein.-con. slab bridge (abutment extension) 41 ft. roadway, approach grading, c. conc. 0.019 mi. over Bougher Drain; 1 span 29 wt. long rein.-con. girder bridge (extension) 41 ft. roadway, approach grading, c. conc. 0.03 mi. over Tamarack Creek; 1 span, 28 ft. rein.-con. girder bridge (extension), 41 ft. roadway approach grading and c. conc. 0.029 mi. over Bixler's Lake Drain, Brimfield and Kendallville, Noble Co.;

Smith & Johnson, 1799 Kentucky Ave., Indianapolis, 21, Ind., LB, $659,537, est. $696,333, 3 span 128 ft. continuous steel beam bridge, dual lanes, 31 ft. each two 5 ft. walks, untreated timber piling, steel enclosed concrete pile bents, 0.012 mi. approach grading and c. conc.; steel beam subway dual lanes, 30 ft. each two 5 ft. walks, no piling, Indianapolis, Marion Co. Bids Apr. 22. CD 4/9.

▲ **Cunningham Bros. Co.,** Bridgeport, Ill., CA, $400,000 sewage treatment works, sanitary sewer, waterworks modification, BRIDGEPORT, ILL. City, City Hall, Bridgeport, Ill. CD 3/5/51.

▲ **WISCONSIN**—State Hy. Comn., Madison,

I. H. Pertzsch, N. 2 St., Onalaska, Wis., LB, $221,613. Contract 1, Option "A", bridge substructures;

John F. Beasley Constr. Co., 20 N. Wacker Dr., Chicago, Ill., LB, $390,927. Contract 1, Option "B", bridge superstructures;

L. G. Arnold, Inc., Eau Claire, Wis., LB, $583,448. Contract 1, Option "C", bridges, Trempealeau-U.S.H. Road, S.T. Hy. 93, S 0119 (5), Trempealeau and LaCrosse Counties. Bids Apr. 22. CD 4/3.

BUILDINGS
LOW BIDS AND CONTRACTS

Weinstein Constr. Co., 573 E. Talmadge St., Akron, O., CA. Approx. $468,000. remodel and expansion JEWISH CENTER incl. gym., nursery, rooms, AKRON, O. Akron Jewish Center, 220 S. Balch St., Akron, O. CD 1/31.

Frank Messer & Sons, Inc., Paddock Rd., Cincinnati, O., CA. Approx. $850,000. 64-bed INSTITUTION for Home for Jewish Chronic Ill, Union St. and Burnet Ave., CINCINNATI, O. Federation of Jewish Agencies, 1430 Centennial Parkway, Cincinnati, O. Bernare Pepinsky, Union Trust Bldg., Cincinnati, O., archt. Harold N. Hermann & Assoc., Enquirer Bldg., Concinnati, O., engrs. Awarded Apr. 17.

A. J. Sackett & Sons, 1701 S. Highland Ave., Baltimore, Md., general contract;

A. V. Stackhouse Co., 2611 Winthrop St., Indianapolis, Ind., concrete work;

Sanborn Electric Co., 311 N. Illinois St., Indianapolis, Ind., electrical work;

General Asbestos & Supply Co., 1532 W. Washington St., Indianapolis, Ind., roofing and siding, for 114x180 ft., rein.-con. FACTORY and WAREHOUSE, KINGSBURY, IND. Kingsbury & Co., 3001 N. Emerson, Brightwood, Ind. Total est., **$500,000.** Awarded Apr. 18.

▲ **John Gebhardt & Son**, 308 W. Washington St., Chicago 6, Ill., CA, **$1,000,000**, 2 story, steel, concrete, stone brick CHURCH, CHICAGO, ILL. St. Mary Magdalene Church, 8426 Marquette Ave., Chicago, Ill. Bids Mar. 19. CD 3/5.

▲ **Ragner Benson, Inc.**, 4744 W. Rice St., Chicago, 51, Ill., CA, **$1,500,000**, 2 story, 222x280 ft., OFFICE bldg., PARK RIDGE, ILL. Aetna Insurance Co., 410 N. Michigan St., Chicago, 11, Ill. Victor L. Charn, 4744 W. Rice St., Chicago, 51, Ill., archt.

J. H. Findorff, 601 W. Wilson St., Madison, Wis., LB **$478,250**, 1 story, Harding Grade SCHOOL, MADISON, WIS. Bd. Educ., 351 W. Wilson St., Madison, Wis. Bids Apr. 17. CD 3/4.

Cream City Constr. Co., 744 N. 4 St., Milwaukee, 3, Wis. CA, **$480,000**, 1 story, 224x640 ft., brick, block, steel WAREHOUSE, MILWAUKEE, WIS. J. Lakam, B. Libowsky & J. Rubin, 744 N. 4 St., Milwaukee, 3, Wis. Roy-Al, Inc., 3344 N. 39 St., Milwaukee, 16, Wis., engr.

Selzer-Ornst Co., 6222 W. State St., Wauwatosa, 13, Wis., CA Approx. **$600,000**, OFFICE addn., MILWAUKEE, WIS. Square D Co., 4041 N. Richards St., Milwaukee, 12, Wis. Bids Apr. 11. CD 3/25.

Edward Rose, 14900 Linwood Ave., Detroit, Mich. Owner Builds. **$475,000.** 50 HOMES, Melton Rd., BIRMINGHAM, MICH.

▲ **H. K. Ferguson Co.**, 1783 E. 11 St., Cleveland, O. CA Total est. **$7,000,000.** PLANT, MONTAGUE, MICH. Hooker Electrochemical Co., 1940 Ward St., Niagara Falls, N. Y. CD 12/6.

Edward Rose, 14900 Linwood Ave., Detroit, Mich. Owner Builds. **$500,000.** 45 brick HOUSES, Oak Park Blvd. and Wyoming section, OAK PARK, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 9, 12 Minnesota — May 9 Missouri
STREETS AND ROADS
May 9, 12 Minnesota — May 9 Missouri

† **Texas**—B.A. 5/14—U. S. Eng., 100 W. Vickery Blvd., Fort Worth, intake structure for domestic water supply, Lavon Dam and Reservoir East Fork of Trinity River, 7 mi. north of Rockwall, Inv. No. CIVENG 41-443-52-53. Approx. $475,000. Plans deposit $10. CD 6/9/44.

▲† **Texas**—B.A. 5/20—U. S. Eng., 100 W. Vickery Blvd., Fort Worth, drainage structures and excavation of channel, Part III, Fort Worth Floodway, Trinity River and Tributaries, Inv. No. CIVENG 41-443-52-52. $1,000,000. Plans deposit $25. CD 6/9/44.

BIDS ASKED—BUILDINGS

▲ **Neb., Omaha**—AUDITORIUM—B.A. 5/12—City, City Hall, 18 and Farnam Sts., municipal auditorium, $6,000,000. Extended date. L. A. Daly Co., Insurance Bldg., archt. CD 3/17.

Colo., Fort Collins—SCHOOL —B.A. 5/19—School District 5, Fort Collins, high school addns. $400,000. Atchison & Kloverstrom, 1254 Monaco Parkway, Denver, engrs. CD 2/11.

▲ **Minn., Austin**—SCHOOL—B.A. 5/20—Bd. Educ., Independent Consolidated School Dist. 27, S. L. Coumbe, clk., South Side Grade School, West Side Grade School, Nevelyn Grade School addn. $2,500,000. Plans deposit $15 each. Toltz, King & Day, 1509 Pioneer Bldg., St. Paul, archts. CD 12/20/51.

Colo., Sterling—HOSPITAL—B.A. 5/23—Good Samaritan Hospital, Sterling, 57-bed, 2 story hospital, X-ray department, etc. $600,000. Walter H. Simon, 1922 E. 18 Ave. Denver, engr. CD 10/18.

SOON LETS CONTRACT—BUILDINGS

Neb., Omaha—HOSPITAL—Nebraska Methodist Hospital, 3612 Cuming St., soon lets contract hospital addn. $500,000. L. J. Dworak, 621 I. E. George Blvd., archt. CD 4/1.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul.

Thornton Bros. Co., 1343 Dayton Ave., St. Paul, Minn. CA **$598,344**, crushed rock base, c. conc. paving, bit. surf. 9.2 mi. Austin on TH 16 and 218 and TH 16 between Brownsdale and Jct. TH 16, Mower Co. CD 4/9, under LB.

▲ **MINNESOTA**—State Hy Dpt., 1246 University Ave., St. Paul.

S. J. Groves & Sons Co., 500 Wesley Temple Bldg., Minneapolis, Minn. LB **$604,675.** grav. base, plant-mixed bit. surf. 19 mi. between Big Lake and 2.4 mi. south of Sherburne Co. line and St. Cloud and Sauk Rapids, Sherburne, Stearns and Benton Counties;

Megarry Bros., St. Cloud, Minn. LB **$504,784.** grav. base, c. conc. base, road-mixed bit. base, plant-mixed bit. surf, asph. surf. 22.4 mi. between Jct. TH 61 (4 mi. south of Cloquet) and Jct. TH 53 and TH 45 in Cloquet, Carlton Co. Bids Apr. 18. CD 4/2.

† **Wade Lahar**, P.O. Box 605, Mountain Home, Ark., CA, **$817,900**, clearing Blakely Mountain Reservoir on Ouachita River in Garland and Montgomery Counties, Inv. 52-126, ARKANSAS. U. S. Eng., P.O. Box 60, Vicksburg, Miss. Bids Mar. 20. CD 4/1.

† **List & Clark Constr. Co.**, Railway Exchange Bldg., Kansas City, Mo., CA. **$860,163**, earthwork, Stage I, Gavins Point Reservoir, near Yankton, Inv. 52-91, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Apr. 1. CD 4/8 under LB.

† **Claussen, Olson & Benner, Inc.**, Holdrege, Neb., LB, **$471,143**, est. $440,173, Schedule 3, earthwork and structures for Laterals 3.4 to 27.8, inclusive and sublaterals, Spec. DC-3681, Missouri River Basin Proj., NEBRASKA. Bureau Reclamation, Dpt. Interior, Arapahoe, Neb. Bids Apr. 10. CD 3/11.

† **Byrne Doors, Inc.**, 1421 E. Eight Mile Rd., Ferndale, Detroit 20, Mich. CA **$457,436.** furnishing, installing sliding hangar doors, Wichita Air Force Base, WICHITA, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. CD 5/22/51.

B & M Constr. Corp., Petroleum Bldg., Oklahoma City 2, Okla., LB **$413,334**, est. $504,000. storm sewer, Contr. 5, OKLOHOMA CITY, OKLA., City, City Hall, Oklahoma City, Okla. Hudgins, Thompson & Ball, 1100 W. Main St., Oklahoma City, Okla., engrs. Bids Apr. 15. CD 4/8.

TEXAS—State Hy. Dpt., State Hy. Bldg., Austin,

John F. Buckner & Sons, P.O. Box 76, Cleburne, Tex., LB, **$189,039.** grading, structures, base and surf. 11.517 mi. Hy. FM 1618 and 399, Proj. S 1566 (1), R 806-42, Garza Co.;

J. B. Clardy Constr. Co. and Ernest Loyd, Box 1120, Fort Worth, Tex., LB, **$452,334**, grading, drainage, structures and T. & N. O. Railroad overpass 7.561 mi. Hy. U. S. 75, Proj. FI 832 (11), Dallas Co.;

Fred Hall & Son, Valley Mills, Tex., LB, **$221,804.** flexible base, 2 course surf. tr. 12.357 mi. Hy. SH 353 and Loop 248, C 519-1-2-1-5, Johnson and Hill Counties;

F. C. Herring, Kurten, Tex., LB, **$72,612.** grading, structures, base and surf. 6.739 mi. Hy. FM 1127, Proj. S 1654 (1), San Jacinto Co.;

L. H. Lacy Co., 5630 Yale Blvd., Dallas, Tex., LB, **$195,842.** c. conc. pavement, widen. and hot mix b. conc. pavement 1.188 mi. Hy. U. S. 77, Proj. C 48-3 and 4-19 and 16, Ellis Co.;

Ernest Loyd, Box 1120, Fort Worth, Tex., LB, **$335,439,** flexible base, asph. pavement 3.488 mi. Hy. U. S. 80 and Alt. Proj. F 235 (7), Midland Co.;

McMillin-Burkett Constr. Co., Box 450, Texarkana, Tex., LB, **$98,422.** grading, structures, base and surf.

★ **The WORLD'S LARGEST Building Job**

NEEDS CONSTRUCTION ENGINEERS

—qualified by experience for responsible field positions on the BILLION DOLLAR Savannah River Plant.

★ **DU PONT**

—is building this huge project for the U. S. Atomic Energy Commission near Augusta, Georgia.

For The Engineer Experienced in Building Construction, We Offer

★ **A CHALLENGING POSITION**
★ **54 HR. WORK WEEK WITH OVERTIME ALLOWANCE**
★ **AN OPPORTUNITY TO ADD A GREAT EXPERIENCE TO YOUR PROFESSIONAL CAREER**

Fill In Your:

NAME_____
ADDRESS_____
CITY_____

• For Details, Please Clip Coupon & Mail to:

E. I. DU PONT DE NEMOURS & CO., Inc.
CONSTRUCTION RECRUITMENT SECTION
P. O. BOX 117 — **AUGUSTA, GA.**

7.832 mi. Hy. FM 1326 and 561, Proj. S 1735 (1) and S 902 (3), Bowie Co.;

Holland Page, P.O. Box 1181, Austin, Tex., LB, **$306,-516.** grading, structures, base, surf. and railway overpass 11.604 mi. Hy. U. S. 281 and FM 1785, Proj. F 166 (4), Atascosa Co.;

Southern Conto. Co., 1901 Meadowbrook St., Austin, Tex., LB, **$107,606,** grading, structures, base and surf. 4.809 mi. Hy. FM 1302, Proj. R 497-5-1. Victoria Co.;

South Texas Constr. Co., Box 3536, Corpus Christi, Tex., LB, **$88,794.** grading, structures, base and surf. 6.836 mi. Hy. FM 957, Proj. R-515-6-1, Lavaca Co.;

Strain & Brown, Inc., Box 1057, San Angelo, Tex., LB, **$102,684.** grading, structures, base and surf. 8.27 mi. Hy. FM 1606, Proj. 1526-1-1, Scurry Co. Bids Apr. 16. CD 4/4.

† **Guy H. James,** 1816 Natl. Bldg., Oklahoma City Okla., CA. **$748,365.** Phase 1, construct rein.-con. spillway of Garza-Little Elm Dam and Reservoir, Elm Fork of Trinity River, near Lewisville, Inv. No. CIVENG 41-443-52-45, TEXAS. U. S. Eng., Box 61, Tulsa, Okla. Bids Apr. 10, awarded Apr. 19. CD 4/17 under LB.

▲† **Lawless & Alford, Inc.,** P.O. Box 600, Austin, Tex., LB **$2,222,000,** airmen's dormitories with mess and admin. facilities, Inv. No. Eng. 41-243-52-75, AUSTIN, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids Apr. 18.

† **Cage Brothers,** 506 Travis Bldg., San Antonio, Tex., CA **$642,462,** 6 airmens dormitories and mess and administration bldg., at Laredo Air Force Base. Inv. No. Eng. 41-243-52-86, LAREDO, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex., Bids Apr. 8. CD 4/15, under LB.

† **P. McInnis and Henry George & Sons,** Hutton Bldg., Spokane, Wash. LB **$713,713,** est. $647,081, general purpose warehouse, Great Falls Air Force Base, Inv. 52-23, GREAT FALLS, MONT. U. S. Eng. City-County Airport, Walla Walla, Wash. Bids Apr. 15. CD 3/6.

BUILDINGS

LOW BIDS AND CONTRACTS

Watson Constr. Co., 404 Baker Bldg., Minneapolis, Minn. CA. **$689,969.** General, mechanical and electric contracts Elliot and Sheridan Grade SCHOOLS, RICHFIELD (MINNEAPOLIS P. O.), MINN. Bd. Educ., Independent School Dist. 12, E. C. Ellenson, clk., Richfield, Minn. Bids Mar. 28. CD 3/13.

▲† **Universal Constr. Co., Inc.,** 424 Scarritt Bldg., Kansas City, Mo. CA **$1,374,104.** addnl. FACILITIES, Lake City Arsenal Part 1, INDEPENDENCE, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. CD 4/17, under LB.

A. S. Battiato, 4929 Grand Ave., Omaha, Neb., Owner Builds. **$500,000.** 35 DWELLNGS, OMAHA, NEB. J. C. Jackson, 513 S. 20 St., Omaha, Neb., archt.-engr.

Dondlinger & Sons, 1206 E. Lincoln St., Wichita, Kan. LB **$898,439,** general contract;

Stevens, Inc., Hutchinson, Kan. LB **$485,860,** plumbing, heating, air-conditioning and ventilating contracts for HOTEL, HUTCHINSON, KAN. Hutchinson Metropolitan Hotel Co., Wiley Bldg., Hutchinson, Kan. Bids Apr. 10. CD 3/11.

▲ **Southeast Kansas Development Co.,** 116 W. 13 St., Pittsburg, Kan. Owner Builds. **$1,500,000.** 100 DWELLINGS, PARSONS, KAN.

▲ **C. F. Braun & Co.,** City Natl. Bank Bldg., Houston, Tex., CA. Approx. **$6,250,000.** REFINERY to mfg. paraxylene, BAYTOWN, TEX. Humble Oil & Refining Co., Humble Bldg., Houston, Tex.

▲ **R. F. Ball Constr. Co.,** 3200 W. Dallas Ave., Houston, Tex., CA. **$2,423,301.** Tex. 9-11-F, 422 HOUSING units for total 69 dwelling bldgs., DALLAS, TEX. Dallas Housing Auth., 2525 Lucas Dr., Dallas, Tex. Bids Apr. 9, awarded Apr. 19. CD 4/15, under LB.

▲ **Hubbard-Hubbell & Nix,** 1507 Delano St., Dallas, Tex., CA. **$1,854,472.** Tex. 9-11-D, 367 masonry HOUSING units for total 56 bldgs., DALLAS, TEX. Dallas Housing Auth., 2525 Lucas Dr., Dallas, Tex. Bids Mar. 26. CD 4/7, under LB.

Seward-Shurtlaff, Box 10308, **Fort Worth, Tex.** Owner Builds. Approx. **$420,000.** 60 DWELLINGS, FORT WORTH, TEX. CD 4/4.

Urban Development Corp., 300 Fourth St., Lubbock, Tex., Owner Builds. **$400,000.** 50 mostly frame DWELLINGS, LUBBOCK, TEX. CD 4/11/51.

Urban Development Corp., 1300 Fourth St., Lubbock, Tex., Owner Builds. Approx. **$450,000.** 65 frame DWELLINGS, concrete slab fdn., LUBBOCK, TEX. CD 4/11/51.

Max Vordenbaum, Box 1972, Wichita Falls, Tex., LB **$429,595.** HIGH SCHOOL, WICHITA FALLS, TEX. Wichita Falls Independent School Dist., Wichita Falls, Tex. Bids Apr. 17. CD 4/10.

† **Phil S. Hardy Constr. Co.,** 205 Texas City Hall, Texarkana, Tex., LB **$748,289.** 2 enlisted men BARRACKS at Red River Arsenal, Inv. No. Eng. 34-066-52-51, TEXARKANA, TEX. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Apr. 15. CD 3/25.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

May 14, 15 California

STREETS AND ROADS

May 14 California

† **Wash., Spokane**—BASE OPERATIONS—B.A. 5/13—U. S. Eng., City—County Airport, Walla Walla, 45x216 ft. rein.-con. operations bldg. and control tower at Fairchild Air Force Base, Inv. 52-24 $480,-000. Extended date. Young & Richardson, Carleton & Detlie, Central Bldg., Seattle, archts. CD 3/24.

▲† **Calif., Camp Pendleton**—TRAINING FACILITIES—B.A. 5/21—Dpt. Navy, Eleventh Naval Dist., San Diego, Calif., expansion and field training facilities Camp Margarita, and Joseph H. Pendleton Marine Barracks. $1,000,000. Plans deposit $170.

▲ **Calif., San Diego**—B.A. 6/10—City Council, Civil Center, completion of Sutherland Dam, multiple arch, rein.-con. structure on Santa Ysabel Creek, $3,200,-000. CD 3/13.

BIDS ASKED—BUILDINGS

Calif. San Bernardino—SCHOOL—B.A. 5/15—San Bernardino High School Dist., 799 "E" St., Schedule C, shop bldgs. at Perris Hill High School, **$500,000.** Plans deposit $75. Walter L. Culver, Parker & Allen, 262 E. Base Line Blvd., Archts. CD 9/11.

Calif., Spadra—SCHOOLS, etc.—B.A. 5/20—State Div. Architecture, P. Wks. Bldg., Sacramento, school bldgs., Units E1 to E5 (inclusive) at Pacific Colony. Plans deposit $50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **IDAHO**—State Hy. Dpt., Boise,

Carl M. Halverson Co., Builders Exchange Bldg., Portland, Ore., CA, **$1,152,953,** roadway, crushed rock surf. 4.81 mi. around Lucky Peak Dam, Ada Co. CD 4/21, under LB.

▲† **J. A. Jones Constr. Co.,** 1117 2 St., Seattle, Wash., and **Charles H. Tompkins,** 906 16 St. N.W., Wash., D. C., CA, **$29,180,346.** Palisades Dam and Power Plant and relocation roads, Payette River, near Idaho Falls, Spec. DC 3675, IDAHO. Bureau Reclamation, Dpt. Interior, Idaho Falls, Idaho. Bids Apr. 10. CD 4/17.

▲ **ARIZONA**—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix,

Martin Constr. Co., Box 934, Tucson, Ariz., LB **$737,-025** select material, aggregate base, bit. plant mix 8 mi. Florence-Tucson Hy, Prima Co.

Phoenix-Tempe Stone Co., Box 1670, Phoenix, Ariz. LB, **$455,404,** furnishing, placing select material aggregate base, bit. road mix 16¾ mi. Topok-Kingman Hy., (U. S. 66), Kingman Co.

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix,

W. J. Henson, Box 471, Prescott, Ariz., CA, **$425,474** grading, draining 9 mi. Rock Springs-Prescott Hy.;

Western Constructors, Inc., Box 1604, Phoenix, Ariz., CA, **$259,666,** grading, draining 6 1/3 mi. Cordes Junction-Bridgeport Highway, both Yavapai Co., both awarded Apr. 6.

Arizona Sand & Rock Co., Box 596, Phoenix, Ariz., $398,402, grading, draining, paving 1½ mi. Ash Fork Flagstaff Section U. S. 66, Coconino Co., Bids Apr. 4, awarded Apr. 18.

† **Phil McInnis & Henry George & Sons,** Hutton Bldg., Spokane, Wash., CA, **$562,216,** est. $583,474 earthwork, structures for Potholes East Canal, Station 2489 plus 41.75 at 3536 plus 23.07 bk and Pasco wasteway Station 0 plus 00 to 15 plus 96 Columbia Basin Proj., Spec. DC 3619, WASHINGTON. Bureau Reclamation, Dpt. Interior, Ephrata, Wash. Bids Mar. 28, awarded Apr. 10. CD 4/4, under LB.

† **Valley Iron Works,** Yakima, Wash., LB **$528,260.** 358 trash rack sections and lifting beam for main and station service units, McNary Dam, Inv. 52-86, OREGON. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Apr. 17. CD 3/17.

CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento,

C. W. Peterson, 6856 Vantage Ave., North Hollywood, Calif., LB, **$104,305,** placing imported base material and apply bit. 2.1 mi. between Chiquita and 2.1 mi. southeasterly El Dorado Co.;

Baun Constr. Co., P. O. Box 1281, Fresno, Calif., LB **$360,291,** grading plant mix on cement treated surf. 4.2 mi. between 1 mi. north of Concord and 0.75 mi. S. of Kings-Tulare Co. line, Kings and Tulare Counties;

Arthur Siri, 1357 Cleveland Ave., Santa Rosa, Calif., LB, **$130,008,** road mix surf. 1.3 mi. at 2 locations between Boonville and 0.9 mi. east of Shearing Creek, Mendocino Co.;

Granite Constr. Co., Box 900, Watsonville, Calif., LB, **$257,943,** plant mix on imported base material surf. 4.7 mi. between Boulder Creek and Waterman Gap, Santa Cruz Co. Bids Apr. 16. CD 3/24.

▲† **M & K Corp., Frederickson & Watson Constr. Co.,** Financial Center, Bldg., San Francisco, Calif., CA **$2,366,000,** barracks, mess hall for 1300 men etc., NOY 28885, Spec. 30509, MOFFETT FIELD, CALIF. Twelfth Naval Dist., San Bruno, Calif. Bids Apr. 2, awarded Apr. 15. CD 4/9, under LB.

† **Campbell Constr. & Equipment Co.,** 465 10 St., San Francisco, Calif., CA, **$918,924,** 13 magazines, etc., Naval Air Station, NOY 28945, Spec. 30349, PORT CHICAGO, CALIF. Twelfth Naval Dist., San Bruno, Calif. Bids Mar. 26, awarded Apr. 18. CD 4/2, under LB.

† **Gould & Cross,** 636 Quay St., Wilmington, Calif., CA, **$588,910,** addnl. facilities barracks, etc. at Marine Corps Air Facility, Spec. 32626, NOY 71072, SANTA ANA, CALIF. Eleventh Naval Dist., San Diego, Calif. Bids Apr. 3, awarded Apr. 17. CD 4/10, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Lidral Constr. Co., Securities Bldg., **Seattle, 1, Wash. LB, $423,324,** general contract, 1 story rein.-con. North Highlands (Hillcrest) elementary SCHOOL, RENTON, WASH. School Dist. 403, Renton, Wash. Bids Apr. 16. CD 3/31.

John H. Deeter, 1230 17 St., Bakersfield, Calif., LB, **$437,000,** new Richgrove Elementary SCHOOL, DELANO, CALIF. Richgrove Elementary School Dist., P. O. Box 591, Delano, Calif. Bids Apr. 11.

Sheperd & Green, 309 American Trust Bldg., Stockton, Calif., CA, **$520,368,** WAREHOUSE Units 5 and 6, STOCKTON, CALIF. Port Comn. of Stockton, 123 N. El Dorado St., Stockton, Calif. Bids Mar. 31, awarded Apr. 17. CD 4/10, under LB.

▲† **Ford T. Twaits Co., Morrison-Knudsen Co., Inc., Macco Corp.,** 449 South Beaudry St., Los Angeles, Calif., CA, **$8,898,200,** training facilities for Marine Corps Artillery TRAINING CENTER, NOY 71074, Spec. 32628, TWENTY-NINE PALMS, CALIF. Eleventh Naval Dist., San Diego, Calif. Bids Apr. 2, awarded Apr. 17. CD 4/8, under LB.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Peter Kiewit Sons Co.,** Longview, Wash., CA. **$542,130,** 1 story bsmnt., 80x175 ft., rein.-con., masonry commissary, Ladd Air Force Base, ENG 95-507-52-30, ALASKA. U. S. Eng., Anchorage, Alaska, Bids Apr. 8. CD 4/15 under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ † **Drake-Puget Sound,** 2929-16th Ave., S. W., Seattle, Wash., LB **$2,878,712,** rein.-con. SCHOOL, two 2 story steel frame BARRACKS, 1 story rein.-con. ELECTRONICS BLDG., rein.-con. LAUNDRY addn., and 17,000 ft. 18 in. c.i. water supply main at Naval Station, Spec. 31604, KODIAK, ALASKA. P. Wks. Officer, 7th Naval Dist., Kodiak, Alaska. Bids Apr. 10. CD 3/14.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

STREETS AND ROADS

May 13 British Columbia

Ont., Fort Williams—HOUSING UNITS—B.A. 5/6—W. J. Milhausen, engr., c/o Central Mortgage & Housing Corp., 400 Kensington Bldg., Winnipeg, Man., 70 housing units, $665,000. Plans deposit $100. CD 10/17.

▲ **Ont., Sudbury**—HOSPITAL—B.A. 5/15—Sudbury Memorial Hospital Bd. J. M. Sanders, secy.-treas. c/o Bank of Montreal, 5 story, bsmnt., rein.-con. masonry one wing 52x270 ft., back wing 85x135 ft., T-shaped hospital, $1,500,000. Chester C. Woods, 12 Richmond St. E., Toronto, archt. CD 8/20.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Baynes Manning Ltd.,** 1010 Seymour St., **Vancouver,** B. C. CA, **$1,090,434,** water treatment plant and storage reservoir at R.C.A.F. Station, WAINWRIGHT, ALTA. Govt. of Canada, Dpt. National Defence AIR, Cartier Sq., Ottawa, Ont.

BUILDINGS

LOW BIDS AND CONTRACTS

Bennett & White Calgary Ltd., 1120 9 Ave. West Calgary Alta. CA, approx. **$750,000,** 3 story, bsmnt., concrete, steel, brick, stone, YOUTH MEMORIAL BLDG., 3 St. West, CALGARY, ALTA. Y.M.C.A., Calgary, Alta. CD 12/31.

▲ **Harwood Lumber Co. Ltd.,** 1 Bambrick St., **St. John's,** Newfoundland, CA, **$1,447,812,** 152 DWELLING UNITS, ST. JOHN'S, NEWFOUNDLAND, Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, N. S. Bids Feb. 12, awarded Apr. 21. CD 1/28.

▲ **Yolles & Rotenberg Ltd.,** 327 Bay St., Toronto, Ont., Owner Builds, **$2,500,000,** 12 story, steel, concrete frame OFFICE and parking GARAGE in bsmnt., Richmond St. W. near Bay St., TORONTO ONT. Hooper & Yolles, 880 Bay St., Toronto, Ont., engrs. Page & Steele, 72 St. Clair Ave. W., Toronto, Ont., archts.

On Site Constr., Quebec, Ltd., c/o David & Pick, 5670 Cote des Neiges Rd., Montreal, Que., Owner Builds, **$720,000,** 60 COTTAGES here, POINTE CLAIRE, QUE. V. Rather, 1115 Sherbrooke St. W., Montreal, Que., archt.

D'Amours et Frere, Ltee, 2633 Bourmonniere St., Montreal, Que., LB, **$450,000,** 2 story, no bsmnt., Notre Dame de la Garde SCHOOL, Brault Ave. near Bannantyne Ave., VERDUN, QUE. Verdun Catholic School Comn., M. Bertrand, secy., Verdun, Que. Bids Apr. 15. CD 4/9.

(Proposal Advertisements see pp. 104 to 106)

NEW LINCOLN PLANT CREATED BY INCENTIVE-INSPIRED CO-ACTION IN DEVELOPING POSSIBILITIES IN PRODUCT

© LE Co. 1952

WELDED DESIGN CUTS STEEL TO 8.5 POUNDS PER FOOT

By **J. R. Pelich**
Architect
Fort Worth, Texas

THE welded steel framework for this new hangar weighs but 8.5 lbs. per square foot of roof area. The roof dead load is only 20 psf as a result of advantages gained by the two-hinged parabolic all-welded truss-arch design.

Each arch weighs 13.5 tons and is fabricated in four sections for ease of handling. Supported on A-frames, and spaced 20 feet apart, the trussed arches span 257 feet. Designed for fast, easy fabricating, they require only three field splices. The 9 arches, purlins and bracing were set in only 12 days with an average crew of 8 men. Erection required only one steel scaffolding tower and a 100' steel gin pole.

Fig. 3—Terminal Building Annex *for the greater Fort Worth International Airport, Fort Worth, Texas. Jos. R. Pelich and P. M. Geren, Associated Architects; Thomas S. Byrne, Inc., Engineers and General Contractors; North Texas Steel Company, Inc., Fabricators; John F. Beasley Construction Co., Erectors.*

WELDED STEEL DESIGN ALWAYS SAVES STEEL AND CUTS COST

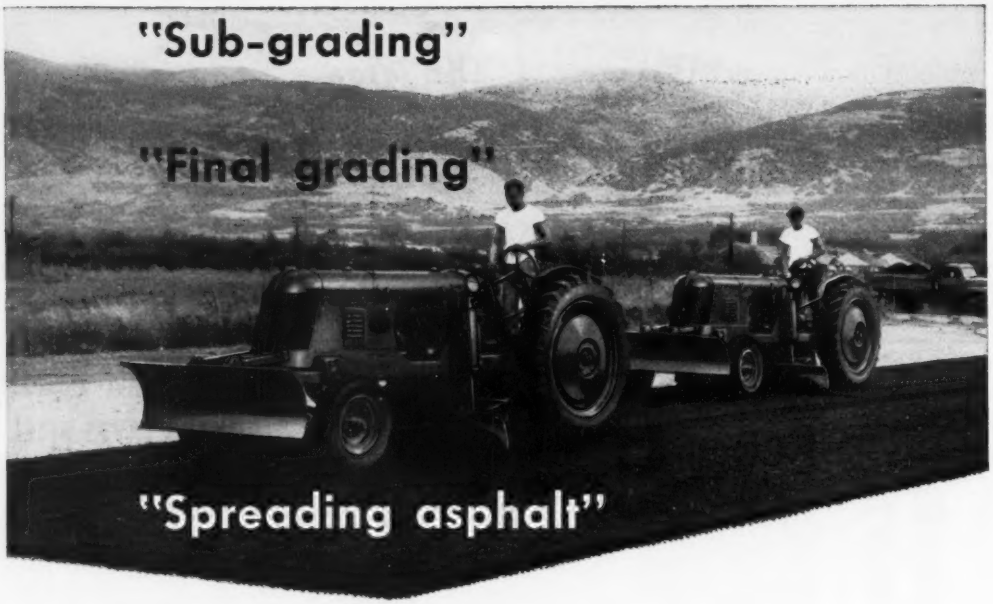
Fig. 1—Typical Pin Detail *on one of nine parabolic welded trussed arches. Arches have a constant depth (3 feet) back to back of tees and rise of 48' 8".*

Fig. 2—Typical Joint Detail *shows simplicity of construction with welded design. Top truss member is 6" WF 26.5# Tee with 8" x ¼" plate plug-welded every 6 inches.*

HERE'S MORE PROOF

Studies in Structural Arc Welding Free on Request. Designers and Engineers write on your letterhead to Dept. 134,

THE LINCOLN ELECTRIC COMPANY
CLEVELAND 17, OHIO
The World's Largest Manufacturer of Arc Welding Equipment



"HUBER MAINTAINERS ARE THE *Handiest Things!*"

H. Sessions & Sons of North Salt Lake, Utah, make many uses of a pair of Huber Maintainers in connection with the asphalt laying service they offer in Utah and nearby states. They've been in the business since 1945, a fact that adds significance to the comment of Mr. Sessions that "the Huber Maintainer is the handiest thing there is in a piece of machinery."

The 6,000-pound, 42½ H. P. Maintainers handle sub-grade and final grading work and spread asphalt. The two of them spread 500 tons in eight hours . . . on another job one of them spread 50 tons in 3½ hours. The Maintainers are "just the right size for laying asphalt," Mr. Sessions said.

Mr. Sessions needs only the Maintainer blade and the bulldozer attachment in his work . . . but you can have any or all of the other HYDRAULICALLY CONTROLLED attachments which enable the Maintainer to work as a lift-loader, highway mower, berm leveler, road planer, broom, snow plow or patch roller.

Huber Maintainers are handling scores of jobs for federal, state, county, municipal and township owners as well as contractors and other private users. Why not learn today, from your nearest Huber Distributor or by writing to the factory, what the Huber Maintainer can do to help you?

HUBER MANUFACTURING CO. • Marion, Ohio, U. S. A.

Manufacturers of Huber Maintainers, Graders and Complete Line of Rollers

HUBER

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—BUILDINGS

▲ **Mass., Boston**—HOUSING—B.A. 5/16—Boston Housing Auth., 230 Congress St., 259 housing units Proj. Mass. 200-10, Wood Estate, Galvin Blvd. development, Dorchester. $2,850,000. Plans deposit $100, returnable. Glaser & Gray, 105 Newbury St., archts. CD 12/27, under LB.

▲ **Mass., Boston**—SHRINE—B.A. 5/19—St. Anthony's Shrine, c/o Father Harold R. B. Lake, 103 Arch St., 12 story shrine, 114 Arch St. $3,200,000. Brother Catejan J. B. Baumann, OFN, 44 Whitehall St., New York, N. Y., archt. Maurie A. Reidy, 101 Tremont St., struct. engr. CD 12/4/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MAINE—State Hy. Comn., State House, Augusta.

Ernest J. Asselyn, 106 William St., Portland, Me. CA $122,141. b. conc. 0.795 mi. road F.A. Proj. FI 01-1 (5) Kittery;

J. R. Cianchette, Pittsfield, Me. CA $402,902, b. conc. 2.829 mi. road F.A. Proj. FI 01-3 (1), Palmyra and Newport. Bids Apr. 16. CD 4/8.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

J. F. White Constr. Co., 201 Alewife Brook Parkway, Cambridge, Mass. CA, $2,208,193, est. $2,109,000. hy. and bridges, Auto Rte. 20, West Stockbridge and Stockbridge. CD 3/31, under LB.

▲† **John Volpe Constr., Inc.,** 54 Eastern Ave., Malden, Mass. CA $3,963,343. building facilities, Air Defense Laboratory adjacent to Hanscom Airport off Wood St., Eng. 19-016-52-33, BEDFORD, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Mar. 6, awarded Apr. 17. CD 3/11, under LB.

Charles Capone Constr. Co., Inc., 32 Wellsmere Rd., Roslindale, Mass. LB $530,930, est. $500,000. Sect. 85 Contr. 151 sewer (Mill Brook Valley) North Metropolitan System, Lexington, BOSTON MASS. State Metropolitan Dist. Comn., Sewerage Div., 20 Somerset St., Boston, Mass. Bids Apr. 17. CD 4/8.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Cambridge Housing Auth.,** 51 Inman St., Cambridge, Mass. rejected bids Apr. 3, 123 HOUSING units, Putnam Ave., Magee and Callendar Sts., Proj. 3-3, CAMBRIDGE, MASS. LB $1,493,189. Will re-advertise. CD 4/17, under LB.

▲ **Medford Housing Auth.,** Gerald A. Palumbo, City Hall, Medford, Mass., rejected bids Mar. 20, HOUSING, Proj. PHA 15-1, Willis Ave., South Medford, MEDFORD, MASS. LB $1,492,499. Will re-advertise. CD 3/25, under LB.

▲† **First Naval Dist.,** 495 Summer St., Boston, Mass. rejected bids Apr. 11, N44 Sec. 2 Proj. 023-80006, 295 HOUSING units. South Weymouth, WEYMOUTH, MASS. LB $2,900,000. CD 4/15, under LB.

▲† **Consolidated Constr. Co.,** Draper Ave., North Attleboro, Mass., LB $1,055,523, dehumidified WAREHOUSE, Naval Advanced Base Supply Depot, NOY 70851, Spec. 31262, DAVISVILLE, R. I. Pub. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass. Bids Apr. 15. CD 3/18.

The Monaco Constr. Co., Reservoir Ave., Bridgeport Conn., CA $634,188, SCHOOL, Roberts Ave., DANBURY, CONN. Town School Bldg. Comn., Danbury, Conn. Bids Apr. 1. CD 4/10, under LB.

B. Perini & Sons, Inc., 73 Montwait Ave., Framingham, Mass. CA, $865,547, Conn 1-D-1, HOUSING Sub Base reservation, Midway Ave. and Grey Rd., GROTON, CONN. Public Housing Auth., 196 Trumbull St., Hartford Conn. Bids Apr. 4. CD 4/10. under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

Md., Baltimore—B.A. 5/7—Bd. Estimate of Mayor and City Council, at office Comptroller, City Hall, Zone 2, Sect. A substructure, Sect. B, superstructure for composite plate girder bridge and concrete piers and abutments, to be known as Liberty Rd. Bridge over North Branch of Patapsco River, approx. 600 ft. downstream from present Liberty Rd. Crossing of North Branch of Patapsco River, for Dpt. P. Wks., Bureau Water Supply. Plans deposit $10 no refund. J. S. Strohmeyer, water engr. CD 11/23/51.

N. Y., Morrisville—B.A. 5/7—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, sewage disposal plant and service connections at New York State Agricultural & Technical Institute. Plans deposit $20.

N. Y., Astoria—B.A. 5/14—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Contr. 3, Long Island Intercepting sewers, Bowery Bay Sewage Treatment Works Extension, Queens Boro. Plans deposit $25. CD 10/18/48.

BIDS ASKED—BUILDINGS

N. Y., Brooklyn—TUNNEL RECONDITIONING—B.A. 5/7—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Contr. 1, general constr.; Contr. 2, mechanical work, Contr. 3, electrical work, for reconditioning tunnels and piping at Kings County Hospital Power Plant, Clarkson Ave. between Albany and New York Aves. Plans deposit $25. CD 3/5.

N. Y., Buffalo—GROUNDS IMPRVS.—B.A. 5/7—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, grounds imprvs. at Buffalo State Hospital. Plans deposit $20.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Hendrickson Bros. Inc., 63 N. Central Ave., Valley Stream, N. Y., LB $559,853, est. $630,000, 1.19 mi. Peninsula Blvd. (Merrick Rd.-Ocean Ave.), Cont. 2 FA.SS. 52-7, Nassau Co.;

Louis Longhi & Son, Inc., Box 580, Glens Falls, N. Y. LB $507,785, est. $587,000, 3.14 mi. Central Bridge-Sloansville, S. H. 1215, FA.RC. 52-20, Schoharie Co.;

Vincelli Bros., Inc., 1523 Mt. Read Blvd., Rochester, N. Y., LB $298,694, est. $308,000, 0.72 mi. Edgemere Dr. County Rd., FA.SS. 52-4, Monroe Co.;

H. L. Baughman, Inc., Rte. 246, E. Henrietta Rd., Rochester, N. Y., LB $1,779,471, est. $1,990,000, 1.98 mi. New York State Thruway-Ontario Sect.-Subdivision 8B and 9 (East River Rd. to Rte. 65); West Henrietta-Rochester S.H. 62; Rush-Henrietta S.H. 1283; East River Rd; Middle Rd.; Pinnacle Rd.; Pittsford-Henrietta Town Line Road-Return Loop, O.T. 52-6, R.C. 52-33, S.T. 52-9. Monroe Co.;

Savin Constr. Corp., 10 Village St., East Hartford, Conn., LB $3,190,954, est. $3,457,000, 7.22 mi. New York State Thruway-The Mohawk Sect.-Subdivision 2 and 3 and City of Oneida, Court St. County Rd.; Canastota-Durhamville County Rd.; Schoolhammer Road Cut-Off and Canastota Village, S.H. 908, M. T. 52-3, M.T. C. 52-4 S.T. 52-7, R.C. 52-33, Madison Co.;

Hogeboom & Campfield, Inc., 10 Hawthorne Rd., New Hartford, N. Y., LB $456,749, est. $492,000, 4.63 mi. Canajoharie-Fultonville, Pt. 2, S.H. 8371, relocated for New York State Thruway-Mohawk Sec. Sub. 14, R.C. (MT) 52-30, Montgomery Co.;

Seneca Industries, Inc., Seneca Falls, N. Y., LB $169,160, est. $172,000. 3.98 mi. Steuben-Remsen County Rd., FA.SS. 52-1, Oneida Co.;

received no bids Apr. 16, FAS.SH 52-5, Franklin and St. Lawrence Counties; PIP. 52-1, Orange Co.; cancelled bids to have been opened Apr. 16, FA.RC. 52-26, Fulton Co. CD 4/2.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Brunalli Const. Co., Southington, Conn., CA $1,058,585, five highway grade separation structures and a relocated town highway, Madison Co. Bids Mar. 19. CD 3/24, under LB.

A. S. Wikstrom, Inc., Box 217, Skaneateles, N. Y., CA $717,960, relocation sect. of the canalized Mohawk River Channel to provide for construction of Mohawk-Thruway, west of Mohawk St., Herkimer Co., NEW YORK. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, Bids Mar. 19. CD 3/24, under LB.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

S. J. Groves & Sons Co., Empire Bldg., Syracuse, N. Y. CA $2,996,381, est. $3,349,000, 9.23 mi. New York State Thruway-The Ontario Sect. sub-division, O. Y. 52-5, Seneca Co.;

The Lane Constr. Corp., 37 Colony St., Meriden, Conn. CA, $874,837, est. $1,020,000, 3.12 mi. The New York State Thruway-The Mohawk Sect. Sub. 16, M. T. 52-5. Montgomery Co.;

Louis Mayersohn, 36 State St., Albany, N. Y., CA $1,259,792, est. $1,311,000. 3.56 mi. New York State Thruway-The Mohawk Sect. Sub. 4, M.T. 52-6, Oneida Co. Grand total $5,111,010. Bids Mar. 26. CD 3/28, under LB.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Public Constructors, Inc., Ellenville, N. Y., CA $618,441, est. $631,000, 3.03 mi. Frankfort-East Schuyler, S.Y 233, Herkimer-Frankfort, S.H. 458, FARC 52-21, Herkimer Co.;

Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream N. Y., CA. $1,355,427, est. $1,805,000, 3.75 mi. Sunrise Hy. Ext. (Broadway Ave. to Washington Ave.), FASH 52-3, Suffolk Co.;

Lane Constr. Co., Inc., 37 Colony St., Meriden, Conn. CA. $3,617,702, est. $4,126,000, 6.2 mi. New York State Thruway, Mohawk Sect. Subdivision 15 (S. Amsterdam By-Pass) Amsterdam-Minaville, Pt. 1, S.H. 32; Amsterdam-Morris Corners, S.H. 513; Snooks Corners-Amsterdam Co. R. 22; Morris Corners to S.H. 8338 County Road 21; Minaville Street Connection (1.51 mi. access) MT 52-2-RC 52-27, ST 52-5 STC 52-6, Montgomery Co. Grand total $5,591,570. Bids Mar. 12. CD 3/17, under LB.

▲ **Horn Constr. Co., Inc.,** 2174 Hewlett Ave., Merrick, N. Y., CA. $4,874,955, Contr. 6, superstructure of Vernon Ave. Bridge over Newtown Creek between Brooklyn and Queens Boros, BROOKLYN, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Mar. 5. CD 3/13, under LB.

NEW JERSEY—State Hy. Dpt., State Hy. Office Bldg. 1035 Parkway Ave., Trenton,

A. J. Cunningham & Sons, 370 Newkirk Ave., Trenton, N. J. LB, $548,150, constr. 3.947 mi. Route 35 Section 7A wid'n., resurf. from Middletown to Keyport in Townships of Middletown, Holmdel and Raritan, Fed. Proj. F-4 (2) Monmouth Co. Bids Apr. 17. CD 3/28.

PENNSYLVANIA—State Hy. & Bridge Auth., 405 North Office Bldg., Harrisburg,

C. W. Good, Inc., Lancaster, Pa., LB $993,651. construct 7,341 ft. divided highway with c. conc. pavement 24 ft. wide on each side of driver, 2 bridges, T. R. U. S. 22, Allentown By-Pass, Lehigh Co. Bids Apr. 18. CD 3/19.

▲ **PENNSYLVANIA**—State Hy. Dpt., North Office Bldg., Harrisburg,

S. A. Willis, T/A Willis Constr., Branchville, N. J., LB $625,077, overlay and widn. 50,896 ft. roadway with crushed aggregate base and bit, surf. T. R. 6, Wayne and Pike Counties;

Harrison Constr. Co., 1101 Western Ave., Pittsburgh, Pa., LB $178,545, surf. 11,796 ft. existing pavement with bit. surf. 24 ft. wide on each side of an existing driver, T. R. 80, Allegheny Co.;

Irving N. Loomis, Montrose, Pa., LB $322,314, overlay of 25,434 ft. of existing pavement with crushed aggregate base and bit. surf. 22 ft. wide, T. R. 14, Bradford Co.;

Ezra Stipp Constr. Co., Love Rd., Scranton 8, Pa., LB $203,713, surf. 28,313 ft. of existing pavement with bit. surf. 18 ft. wide, T. R. 106, Lackawana and Susquehanna Counties;

Allegheny Asphalt & Paving Co., 801 Bingham St., Pittsburgh 3, Pa., LB $287,695, widn. 28,790 ft. existing pavement with granulated slag base or crushed aggregate and bit, surf. new surf. 24 ft. wide, T. R. U. S. 19, Lawrence Ct. Bids Apr. 18. CD 3/26.

▲ **DELAWARE**—State Hy. Dpt., Dover.

James Julian, Elsmere, Del., LB $1,928,107. Alternate B, 8.385 mi. c. Conc. divided hy. with 24 ft. roadways, Browns Church to Laurel-Georgetown Hy., Contract 1148, Sussex Co. LB, $165,844, 6.219 mi. c. conc. widn. Marydel to Pearson Corner, Contract 1037, Kent Co.;

Standard Bitulithic Co., foot of Brill St., Newark, N. J. LB, $1,980,301, alternate A, hot mix asph. 8.365 mi. divided hy. with 24 ft. roadways, Brown's Church to Laurel-Georgetown Hy. Contract 1148, Sussex Co. Bids Apr. 16. CD 3/26.

BUILDINGS

LOW BIDS AND CONTRACTS

M. Melnick & Co. Inc., 225 Willow Ave., New York 54, N. Y. CA $539,000, modernization of and addn. to P. S. 121, SCHOOL, 103 St. and Lexington Ave., NEW YORK, N. Y. Bd. Educ., Supt. School Bldgs., Design & Construction, 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Mar. 4. CD 3/13, under LB.

James Mitchell, Inc., 75 Montgomery St., Jersey City, N. J., LB, $135,836, foundations for Cargo Terminal Bldg. No. 410, Contract PN-200.002, PORT NEWARK, N. J. Port of New York Auth., 111 8 Ave., New York, 11, N. Y. Bids Apr. 14. CD 3/27.

▲† **U. S. Eng.,** P. O. Box 1715, Baltimore, Md., rejected bids Feb. 28, permanent troop spaces, Eng. 18-020-52-27, FORT GEORGE G. MEADE, MD. LB $7,809,000. CD 3/11, under LB.

▲ **Victor R. Beauchamps,** 6837 4 St. N. W., Wash., D. C., CA, $2,641,890, 256 unit Highland DWELLING addn., Project DC 1-16, WASH., D. C. National Capitol Housing Auth., 1782 L St., N. W., Wash., D. C. Bids Mar. 18, awarded Apr. 18. CD 3/20, under LB.

SOUTH

BIDS ASKED—BUILDINGS

† **N. C., Fort Bragg**—SHOP—B.A. 5/8—U. S. Eng., 308 Customhouse, Wilmington, shop facilities for tank repair, one battalion shop, 4 identical shops, oil storage bldg., paving, etc. ENG 31-075-52-23. CD 3/31.

▲ **Va., South Hill**—HOSPITAL—B.A. 5/9—Community Memorial Hospital, c/o Louis W. Ballou & Charles C. Justice, archts., 106 E. Cary St., Richmond, hospital. $1,000,000.

† **Fla., Orlando**—FIELD STATION—B.A. 5/13— Dpt. Agriculture, 14 St. and Independence Ave. S. W. Wash., 25, D. C., horticultural field station, Proj. No. 8070.

N. C., Jackson—SCHOOL—B.A. 5/13—Northampton Co. School Bd., Jackson, Conway School. John J. Rowland, Kinston, archt.

Ga., Toccoa—SCHOOL—B.A. 5/14—City, high school addns. $300,000. Plans deposit $25. Wm. J. J. Chase & Assocs., Candler Bldg., Atlanta, archts.

N. C., Morganton—SERVICE—B.A. 5/14—State School for Deaf, Morganton, service bldg. addns. Plans deposit $25. Charles C. Benton & Sons, Wilson, archts. CD 6/29/44

† **Fla., Jacksonville**—SHOP—B.A. 5/21—Dpt. Army, Florida National Guard Bureau, St. Augustine, motor service shop. Plans deposit $15.

Ga., Columbus—SCHOOL—B.A. 61—Muscogee Co. Bd. Educ., Columbus, 14A Negro High School, $500,000. E. Oren Smith, 1236 Wildwood Ave., archt. CD 6/26/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Atlantic Bitulithic Co., 1400 Roseneath Rd., Richmond, Va., LB $493,719, street paving, RICHMOND, VA. Dpt. P. Wks., City Hall, Richmond, Va. Bids Apr. 11. CD 3/20.

Nello L. Teer Co., Durham, N. C., LB $733,345, street imprvs., DURHAM, N. C. City, Durham, N. C. Bids Apr. 16. CD 4/11.

† **R. H. Wright & Son,** 150 N.E. 5 Terrace, Ft. Lauderdale, Fla., LB, $366,246, Structure S-11 comprised of spillways A, B and C in Levee L-38, Central and Southern Florida Flood Control, Proj. Inv. No. Civeng 08-23-52-63, FLORIDA, U. S. Eng., P.O. Bo 4970, Jacksonville, Fla. Bids Apr. 11. CD 3/12.

† **Lander Constr. Co.**, P.O. Box 472, Waxahachie, Tex. LB **$980,000.** clearing Grenada Reservoir on Skuna and Yalobusha Rivers, Inv. 52-141, Grenada and Yalobusha Counties, MISSISSIPPI. U. S. Eng., P.O. Box 60, Vicksburg, Miss. Bids Apr. 15. CD 3/19.

Dunn Constr. Co., 1121 W. Capitol St., Jackson, Miss. CA **$160,974.** street paving Proj. No. 138, JACKSON 1, MISS. City, City Hall, Jackson, Miss. Bids Apr. 14. CD 3/27.

T. L. James & Co., Ruston, La. LB **$349,627.** 28 mi. concrete sidewalks, curbs and driveways, HOUMA, LA. City, Houma, La. Bids Apr. 9. CD 3/7.

KENTUCKY—State Hy. Dpt., Frankfort,

R. R. Dawson Bridge Co., Bloomfield, Ky. CA **$520,767.** bridge, bit. surf. Class I or H approaches, 0.708 mi. Corbin-Cumberland Falls Rd., F 224 (10), SP 118-220, 74-33, Whitley and McCreary Counties. CD 4/18, under LB.

▲ **Southern Bell Telephone Co.**, Hurt Bldg., Atlanta, Ga. Owner Builds. Approx. **$3,500,000.** coaxial telephone cable from Chattanooga to Knoxville, TENNESSEE.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Libbey Constr. Co.**, 1401 K St., N. W. Wash. D. C., Owner Builds. Approx. **$9,000,000.** construct 800 HOUSING units, Kenwood Towers and Bradlee Towers, ALEXANDRIA, VA. **Joseph Saunders**, 121 S. Columbus St., Alexandria, Va., archt. **Edward S. Holland**, 316 S. Washington St., Alexandria, Va., engr. CD 2/28, under LB.

▲ **Irons & Reynolds, Inc.**, 1724 H St., N. W. Wash. D. C., LB **$1,603,844,** Base Bid I; **F. H. Martell, Inc.**, 1023 20th St., N. W. Wash. D. C., LB **$1,585,000,** Base Bid II; LB **$1,241,000,** Base Bid III, LB **$1,227,000,** Base Bid IV, for construction of 194 or 148 units HOUSING. Proj. VA 4-4, ALEXANDRIA, VA. Alexandria Redevelopment & Housing Auth., Cameron Valley, Alexandria, Va. CD 9/18.

Mastercraft Builders, S. Reid St., Richmond, Va. Owner Builds. Approx. **$650,000.** 75 RESIDENCES, DAHLGREN, VA.

▲ **Housing Engineering Co.**, 1229 W. Mt. Royal Ave., Baltimore, Md., CA. **$2,836,000.** construct, manage finance, Wherry HOUSING, Camp Allen Area, NORFOLK, VA. Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids Mar. 13, awarded Apr. 3. CD 3/25, under LB.

J. Lee Poates, Jr., 2501 Hilliard Rd., Richmond, Va. Owner Builds. Approx. **$409,000.** RESIDENCES, RICHMOND, VA.

▲ **B. F. Parrott Co.**, Box 1791, Roanoke, Va., CA, Approx. **$1,029,000.** 5 story, bsmnt., 191x94x45 ft., brick, concrete, steel NURSES HOME addn. to Hospital, PARKERSBURG, W. VA. St. Joseph's Hospital, Parkersburg, W. Va. Bids Apr. 3. CD 3/13.

Yeamans Development Co. P.O. Box 85, North Charleston, S.C. Owner Builds. Approx. **$800,000.** 83 RESIDENCES, NORTH CHARLESTON, S.C.

J. C. Long, 88 Broad St., Charleston, S. C. Owner Builds. **$800,000.** 83 HOUSING units in Waylyn Park. NORTH CHARLESTON, S. C.

C. J. Wilkerson c/o George Griswold, archt., 1220 Arlington Ave. N., St. Petersburg, Fla. Owner Builds. **$300,000.** APARTMENT UNITS, ST. PETERSBURG, FLA.

Ralph A. Smallman & Co., Inc., 1109 5 Ave. S., Birmingham, Ala., CA, **$300,000,** Department STORE addns., alterations, BIRMINGHAM, ALA. Edward Co., c/o contractor.

McKinney Constr. Co., 515 Second St., New Orleans, La. Owner Builds. **$750,000.** 75 RESIDENCES, Belle Chasse area, NEW ORLEANS, LA.

† **V. L. Nicholson Co.**, 611 S. Central St., Knoxville, Tenn., CA **$278,227,** CENTRAL SHOP Bldg. 26, maintenance area, OAK RIDGE, TENN. U. S. Atomic Energy Comn., P.O. Box 3, Attention: R. J. Dunbar, Engr. & Constr. Div., Oak Ridge, Tenn. Bids Apr. 11. CD 3/12.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ohio**—PIPE LINE—B.A. 6/1—Sun Pipeline So., 3200 Independence Rd., Cleveland, 110 mi. 8 in. pipe line to connect Fostoria to Hudson. $3,000,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

James E. Roach, 1886 Huron Ave., Cincinnati, O., CA, **$278,609,** est. $290,000. wid'n, repaving Seymour Ave. between Langdon Farm Rd. and east line of Longview Hospital from 2-lane macd. to 4-lane (44 ft.) c. conc. pavement, CINCINNATI, O. City, W. R. Kellogg, mgr., City Hall, Cincinnati, O. CD 3/18-46.

BUILDINGS

LOW BIDS AND CONTRACTS

The F. K. Vaughn Building Co., 1st. Natl. Bank Bldg., Hamilton, O., CA. **$377,000.** addn to house 10,000 kw turbine GENERATOR at municipal electric plant, HAMILTON, O. City. Municipal Bldg., Hamilton, O. Awarded Apr. 8. CD 7/24/50.

▲ **Klug & Smith**, 4425 W. Mitchell St., Milwaukee, 14, Wis., CA, Approx. **$3,000,000,** 6 story, 97x113 ft. POWER PLANT, etc., MILWAUKEE, WIS. Wisconsin Electric Power Co., 231 W. Michigan St., Milwaukee, 3, Wis. Ammann & Whitney, 611 N. Broadway, Milwaukee, 2, Wis., engrs. CD 11/22/50.

Spence Brothers, 417 McCloskey St., Saginaw, Mich., LB. **$948,700.** 2 story, bsmnt., brick, steel, concrete Cascades Intermediate SCHOOL, JACKSON, MICH. City, Bd. Educ., Jackson, Mich. Bids Apr. 14. CD 3/31.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Minn., Minneapolis**—B.A. 5/15—U. S. Eng., 1709 Jackson St., Omaha, Neb., water distr. sys. incl. 5,100 lin. ft. 1- to 8-in. water lines, 6 fire hydrants; sanitary sewerage sys., incl. 5,100 lin. ft. 6- to 10-in. vitr. clay pipe, 200 lin. ft. 6- to 10-in. c.i. pipe, 16 manholes, storm sewerage sys., incl. 4,250 lin. ft. 18- to 48-in. concrete pipe, 23 catch basins; approx. 10,000 lin. ft. primary aerial electrical distr. sys., ten 3-phase transformer banks, street lighting; approx. 17,000 sq. ft. flexible paving for roads, parking areas, drives, etc., Weld-Chamberlain Air Force Base, Eng. 25-066-52-83. CD 11/27/51.

BIDS ASKED—BUILDINGS

Tex., Rusk—HOSPITAL—B.A. 5/9—Board for Texas State Hospitals & Schools, 45 and Lamar Sts., Austin, 4 story, 83x129 ft., receiving and treatment bldg. at Rusk State Hospital, radiant heating, 2 electric elevators, etc. $800,000. Extended date. Shirley Simons & Sons, 1723 S. Broadway, Tyler, archts. CD 3/5.

▲ **Colo., Denver**—DEPARTMENT STORE—B.A. 5/18—Buell Development Corp., 730 14 St., 3 story, 90,000 sq. ft., brick, stone glass department store, $1,114,000. T. H. Buell & Co., 730 14 St., engrs. CD 9/21/48.

Tex., Dallas—PLANT—Bids Asked—Diamond Alkali Co., Box 6150, plant addn. $541,000. CD 8/1.

▲ **Tex., Dallas**—PLANT—Bids Asked—Ford Motor Co., 5200 E. Grand St., assembly plant expansion. $7,778,829. CD 1/17/51.

▲ **Tex., Longview**—PLANT—Bids Asked—Powers Mfg. Co., c/o V. A. Clements, pres., Longview Natl. Bank, oil pipe fittings mfg. plant, $4,795,537. CD 4/21.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Gustav Hirsch Organization, Inc.**, 1347 W. 5 Ave., Columbus, O. CA **$1,883,820.** two 30,000 KVA 161/69 KV sub-stations, Proj. Missouri 71A Moniteau, Wright and Maries Counties, MISSOURI. Central Electric Power Co-operative, Linn, Mo. Bids Apr. 7. CD 3/17.

Hoak Constr. Co., 621 63 St., Des Moines, Ia. CA **$694,973.** 117 mi. transmission lines, Caldwell, Carroll, Livingston, Chariton, Ray and Clinton Counties, MISSOURI. Northwest Electric Power Co-operative, Cameron, Mo. Bids Apr. 16. CD 4/2.

TEXAS—State Hy. Dpt., State Hy. Bldg., Austin,

Bell, Braden, Barker & Gilvin, Inc., P. O. Box 2268, Amarillo, Tex., LB **$4,043,451,** P. & S. F. underpass and approaches, pavement, wid'n. Hy. U. S. 287 Proj. FG 162 (8), Potter Co.;

Cage Bros., 506 Travis Bldg., San Antonio, Tex. and **Dean Skinner**, Dallas Hy., Austin, Tex., LB **$259,338,** Guadalupe River Bridge and approaches Hy. St. 80, Proj. F 781 (1), Gonzales Co. Bids Apr. 15. CD 4/3.

▲ **TEXAS**—State Hy. Dpt., State Hy. Bldg., Austin,

C. Hunter Strain, P. O. Box 1057, San Angelo, Tex., LB **$116,678,** asphaltic pavement 26.527 mi. Hy. U. S. 84 and 281, Proj. C 55-1-4 and C 251-5 and 6-10 and 6, Mills and Lampasas Counties;

W. R. Boyd, Inc., Cushing, Tex., LB **$78,593,** grading, structures, base and surf. 6.18 mi. Hy. FM 1794, Proj. R 1760-1-1, Panola Co.;

Uvalde Constr. Co., P. O. Box 3027, Dallas, Tex., LB **$168,706,** est. $150,000. wid'n, conc. pavement wid'n and storm sewers 1.286 mi. Hy. U. S. 80, Proj. C 8-8-30, Dallas Co.;

Thomas & Ratliff, Rogers, Tex., LB **$626,754,** flexible base, hot mix, b. conc. 6.024 mi. Hy. U. S. 81, Proj. FI 644 (7), Bell Co.;

Schwope Bros., 6633 W. Commerce St., San Antonio, Tex., LB **$97,395,** est. $75,000. seal coat 90.041 mi. Hy. FM 649, SH 173, FM 496, SH 339, Proj. C 329-1-2, etc. Jim Hogg and Duval Counties;

West Texas Constr. Co., Lubbock, Tex., LB **$105,277,** est. $75,000. seal coat 123.497 mi. Hy. U. S. 84, 380, 62, SH 137, FM 211, etc. Proj. C 53-5-14, etc., Garza, Lynn, Lubbock Hockley, Terry, Hale and Yoakum Counties;

Ernest Lovd, P. O. Box 1120, Fort Worth, Tex., LB $162,281, est. $150,000. wid'n. structures and pavement 27.508 mi. Hy. U. S. 277, Proj. C 156-5 and 6-14 and 13, Archer and Baylor Counties;

Reynolds & Huff, P. O. Box 88, Tyler, Tex. and O. W. **Howard**, Madisonville, Tex., LB **$172,000,** est. $175,000. grading, structures, base, surf. 14.08 mi. Hy. FM 850, Proj. S 1177 (2) and (3), Smith and Rusk Counties;

R. B. Butler, Inc., P. O. Box 471, Bryan, Tex., and **J. H. Howard**, Madisonville, Tex., LB **$295,813,** grading, structures 9.864 mi. Hy. SH 64, Proj. F 115 (5) and (6), Van Zandt and Smith Counties;

Spencer Constr. Co., Inc., Carrollton, Tex. and **Dew Constr. Co., Inc.**, Tyler, Tex., LB **$339,061,** est. $200,000 grading, structures, base and surf. 15.364 mi. Hy. FM 1837, 148, 1641, Proj. S 433 (2), Kaufman Co.;

Kerr & Middleton, 2206 Clovis Rd., Lubbock, Tex., LB **$149,952,** grading, structures, base and surf. 27.405 mi. Hy. FM 300, 1279, 1894, 1169 and 1780, Proj. S 1790 (1), Hockley and Cochran Counties;

Austin Road Co., 1000 Singleton Blvd., Dallas and **Worth Constr. Co.**, 312 E. Berry St., Fort Worth, Tex., LB **$1,560,934.** grading, structures, revisions and c. conc. pavement 11.942 mi. Hy. U. S. 66, Proj. C 275-11-17, Gray Co. Bids Apr. 15. CD 4/3.

▲ **TEXAS**—State Hy. Comn., Austin,

▲ **Trotti & Thomson, Inc.**, P.O. Box 70, Beaumont, Tex., LB, **$417,131,** flexible base, hot mix asph. surf. tr. 11.223 mi. Hy. SH 87, Proj. C. 305-7 and 6-7 and 6, Orange and Newton Counties;

Heldenfels Bros., Rockport, Tex., LB, **$312,439,** b. conc. 16.869 mi. Hy. U. S. 281, Proj. C. 255-1-15, Jim Wells Co.;

Bell, Braden, Barker & Gilvin, Inc., P.O. Box 2268, Amarillo, Tex., LB, **$913,229,** grading, structures, flexible base, asphaltic surf. tr. 13.85 mi. U. S. Hy. 66, Proj. FI 643 (17), Potter Co. Bids Apr. 16. CD 4/4.

Empire Electric Co., Inc., 1015 W. Rosedale St., Fort Worth, Tex., LB, **$160,949,** expressway illumination sys., Hy. SH 550, **Tarrant Co.**, TEXAS. State Hy. Dpt., State Hy. Bldg., Austin Texas. Bids Apr. 16.

† **Barfield Constr. Co., Box 1034, Del Rio, Tex.**, LB, **$187,676,** est. $300,000, construct new bldgs. for reactivation of Laughlin Air Force Base, Inv. No. Eng. 41-243-52-60, DEL RIO, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex., Bids Apr. 17. CD 3/25.

Armco Drainage Metal Products Corp., 3500 Maury St., Houston, Tex., CA. **$541,752.** water mains from city's purification plant to owners distr. sys. at various points, HOUSTON, TEX., City, City Hall, 900 Brazos St., Houston, Tex. Bids Mar. 26. CD 4/21, under LB.

James B. Clow & Sons, 2919 Main St., Houston, Tex., LB, **$49,712,** on certain parts of water mains from City's Purification Plant to connect with distr. sys. at various points, HOUSTON, TEX. City, City Hall, 900 Brazos St., Houston, Tex. Bids Mar. 26. CD 3/17.

▲† **Mississippi Valley Eng. & Constr. Co.**, 787 S. Willett St., Memphis, Tenn., CA, **$1,131,890,** two lots of work on Arkansas River for miles upstream from Ft. Smith, involving pile and standard revetment and pile construction, CIVENG 03-050-52-53, ARKANSAS U. S. Eng., 3030 Broadway, Little Rock, Ark. Bids Feb. 27. CD 3/20, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Nevin & Anderson, Minot, N. D., CA, Approx. **$150,000.** wholesale grocery WAREHOUSE with OFFICES, MINOT, N. D. Nash Finch Co., Minot, N. D. G. H. Bugenhagen, Minot, N. D., archt.

▲ **S. Patti Constr. Co., Inc.**, 1340 Admiral St., Kansas City, Mo. CA, Total est. **$6,000,000.** substructural work, 252x702 ft. pump mfg. plant SHOP, 292x422 ft. FOUNDRY, TURNER, KAN. Fairbanks-Morse & Co., 600 E. Michigan St., Chicago, Ill. CD 4/2.

▲ **C. F. Braun & Co.**, City Natl. Bank Bldg., Houston, Tex., CA. Approx. **$5,750,000,** PETROCHEMICAL PLANT, CA. Approx. **$1,750,000,** ALKYLATION REFINING UNIT, BAYTOWN, TEX. Humble Oil & Refining Co., Baytown, Tex. CD 12/6.

Eitze-Kitchens Constr. Co., Guadalupe and W. 45 St., Austin, Tex., CA. **$345,273,** 2 story and part 3 story brick, reinforced concrete HOUSE, PANHANDLE, TEX. Panola Co. Comrs. Court, Court House, Carthage, Tex. Bids Apr. 15. CD 3/24.

▲ **Chuchill & Barry**, 212 Life of America Bldg., Dallas, Tex., CA. **$1,280,000.** 160x201 ft. masonry OFFICE and WAREHOUSE, air-conditioning, etc. DALLAS, TEX. CD 4/15.

▲ **BMFP Constr. Co.**, Box 1595, Lubbock, Tex., LB **$1,349,368,** est. $1,200,000. CHURCH and EDUCATIONAL BLDG. LUBBOCK, TEX. First Methodist Church, Lubbock, Tex. Bids Apr. 15. CD 3/18.

O'Rourke Constr. Co., 4011 Koehler St., Houston, Tex., CA. **$509,665.** 2 story masonry ADMINISTRATION BLDG., ROCKDALE, TEX. Aluminum Co. of America, Rockdale, Tex. Awarded Apr. 15. CD 4/17, under LB.

▲ **Texarkana Constr. Co.**, Texarkana, Tex., CA **$830,000.** 132 low-cost HOUSING units; CA **$519,000.** 68 low-cost HOUSING units for Negroes, TEXARKANA, TEX., Texarkana Housing Auth., Texarkana, Tex. Bids Apr. 8. CD 4/9.

R. L. Foster, 10 Pueblo Dr. Santa Fe., N. M., LB, $300,000, Baptist ASSEMBLY BLDG. group, GLORIETTA, N. M. Sunday School Bd. of the Southern Bantist Convention, 1800 Whites Creek Park, Nashville, Tenn. Schaefer, Merrill & Assoc., 111 E. 14 St., Clovis, N. M., archts. CD 7/5.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Washington**—B.A. 5/20—Bureau Reclamation, Dpt. Interior, Ephrata, earthwork, asph. membrane lining and structures for Area W-6A laterals, subiaterals and wasteways, West Canals Laterals, Columbia Basin Proj. Spec. DC 3710; adv. ENR 5/1.

† **Oregon**—B.A. 5/28—U. S. Eng., City-County Airport, Walla Walla, Wash., stop logs, trash racks, lifting beam and trash rake for fishway pump house, McNary Dam, CIVENG 45-164-52-96.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **IDAHO**—State Hy. Dpt., Boise,

Carl M. Halvorsen Co., Builders Exchange Bldg., Portland, Ore., LB, **$1,152,951,** constr. roadway and crushed rock surf. 4.81 mi. around Lucky Peak Dam, Ada Co. CD 1/22/46.

IDAHO—State Hy. Dpt., Boise,

Carbon Bros., N. 3430 Cook St., Spokane, Wash., CA,

$505,186, roadway and bit. 7.506 mi., Lewis Co. Bids Mar. 11. CD 3/28, under LB.

† **Marshall, Haas & Royce,** Belmont, Calif., LB **$766,370** est. $687,240, earthwork, concrete, canal lining and structures for Mohawk Canal, Station 2053 plus 72.16 to 2474 plus 08.83; and radium Hot Springs flood protection system, Station 170 plus 70 to 584 plus 50 Gila Proj., Spec. DC 3683, ARIZONA. Bureau Reclamation, Dpt. Interior Bldg. 1A, Denver Federal Center, Denver, Colo. Bids Apr. 10. CD 3/7.

WASHINGTON—State Hy. Dpt., Olympia, H. Hagman, Cashmere., Wash., CA, **$176,766,** rein.-con. bridge over Spokane River in 0.091 mi. Barker Rd. F.A.S.S. 0467, Spokane Co. Bids Apr. 15. CD 4/2.

WASHINGTON—State Hy. Dpt., Olympia, **Western Asphalt Co.,** 309 W. 39 St., Seattle, Wash., CA, **$306,472,** b. conc. 12.818 mi. Hy. 2 Issaquah to North Bend, F.A.P.FI 002-1 (6), King Co. Bids Apr. 15. CD 4/2.

▲† **McPhail Eng. Co.,** 2904 Alaska St., Tacoma, Wash., LB, **$2,512,042,** est. $2,720,188, 3 story, 220x37 ft., rein.-con. barracks and 1 story, 112x141 ft., frame mess and administration bldg., at McChord Air Force Base, Inv. 52-126, TACOMA, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids Apr. 15. CD 4/7.

▲† **Guy F. Atkinson Co.,** 10 W. Orange Ave., South San Francisco, Calif., CA, **$5,772,959,** Folsom Power Plant and appurtenant works at Folsom Dam Site, Spec. DS 3662, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Sacramento, Calif. Bids Apr. 2. CD 4/9, under LB.

▲ **Dinwiddie Constr. Co.,** Crocker Bldg., San Francisco, Calif., LB, **$3,253,100,** four 1 story, 200x1000 ft. storehouses, utilities, etc., at Naval Air Station, NOY 28950, Spec. 30554, ALAMEDA, CALIF. Twelfth Naval Dist., San Bruno, Calif. Bids Apr. 15. CD 3/52.

† **Peter Kiewit Sons Co.,** 345 Kieways, Arcadia, Calif., LB, **$580,852,** taxiway alert and maintenance aprons and jet fuel system. Spec. No. 1608, TRAVIS AIR FORCE BASE, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Apr. 16.

BUILDINGS

LOW BIDS AND CONTRACTS

† **U. S. Eng.,** 180 New Montgomery St., San Francisco, Calif. will not construct COMMISSARY Bldg. in Area "E" Dugway Proving Grounds, TOOELE, UTAH, Project cancelled. CD 12/10.

▲† **MacDonald, Young and Nelson and Morrison Knudsen Co., Inc.,** 351 California St., San Francisco, Calif., LB, **$1,928,269,** construct 57 earth covered AMMUNITION MAGAZINES and 4 fuse DETONATOR MAGAZINES at Naval Ammunition Depot, NOY 71222, Spec. 30561, HAWTHORNE, NEV. P. Wks. Office, Twelfth Naval Dist., Construction Div., San Bruno, Calif. Bids Apr. 16. CD 3/19.

▲ **Johnson Western Constructors,** Box 6, San Pedro, Calif., LB, **$1,073,148,** WAREHOUSE, Berth 7, B and O. Pier "A." Long Beach Outer Harbor, HD 343, LONG BEACH, CALIF. Bd. Harbor Comm., 1333 Ft. Embarkadero St., Long Beach, Calif. Bids Apr. 19. CD 4/18, under LB.

▲ **Robert E. McKee,** 4700 San Fernando Rd., West Los Angeles, Calif., CA, **$1,607,820,** general contract; **S. Glen Hickman Co.,** 3170 E. 11 St., Los Angeles, Calif. CA, mechanical work, for RECEIVING and ACUTE TREATMENT UNIT, Patton State Hospital, PATTON, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids Mar. 18, awarded Apr. 12. CD 3/26, under LB.

† **MacDonald, Young & Nelson-Knudsen Co., Inc.,** 351 California St., San Francisco, Calif., LB, **$462,340,** SALVAGE OPERATIONS BLDG., INFLAMMABLE STORAGE BLDG., VEHICLAR EQUIPMENT and REPAIR BLDG., etc., at Sacramento Signal Depot, Spec. 1571, SACRAMENTO, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Apr. 16. CD 3/25.

▲ **L. C. Dunn, Monadnock Bldg.,** San Francisco, Calif., CA, **$3,000,000.** HOSPITAL in Anza Vista District, SAN FRANCISCO, CALIF. Permanent Foundation. Kaiser Bldg., Oakland, Calif. Bids Apr. 8, awarded Apr. 16. CD 4/8.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

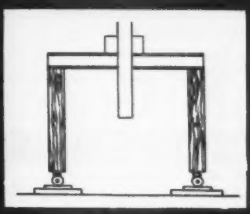
† **Alaska**—TRANSFORMER—B.A. 5/29—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Palmer, one 5,000 kva, 110,000 delta-to 12,470 grounded wye/7,200-volt, 3-phase, 60-cycle, outdoor-type, power transformer, with 3 single-pole, station type outdoor lightning arresters mounted on the tank and 3 single-pole, self-supporting station-type lightning arresters for the Palmer sub-station, Eklutna Proj. Inv. No. DS-3709.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **S. Birch & Son, C. F. Lyle & Green Constr. Co.,** Anchorage, Alaska, CA, **$3,525,549.** outside utilities to family quarters, barracks and commissary, temporary boiler plant addn., etc., Eng 95-507-52-47, Elmendorf Air Force Base, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids Apr. 1. CD 4/7. under LB.

DIFFICULT FOUNDATION WORK



- FOUNDATIONS
- CAISSONS
- UNDERPINNING
- SHEETING & BRACING
- PILING & SHEETING
- SHORING
- COFFERDAMS
- MOVING STRUCTURES
- SPECIAL SERVICES

Write for revised catalog.

SHORING

Many years of experience in shoring and transferring heavy loads and prestressing structural members — experience arising out of extensive underpinning work—are successfully applied by Spencer, White & Prentis, Inc., time after time to successful solution of problems in extensive alterations, reconstruction and repair of all types and sizes of buildings.

Skilled Spencer, White & Prentis engineers will gladly discuss without obligation any shoring problem you may have.

Write today for our new illustrated catalog.

SPENCER, WHITE & PRENTIS, INC.

10 East 40th Street, New York 16 • Hammond Bldg., Detroit, Mich.

In Canada

Spencer, White & Prentis of Canada, Ltd.

2052 St. Catherine's St., W. • Montreal, Quebec

New Transits and Levels by Experts

Each Buff is dependable, accurate and economical.

Send for catalog #329.

Headquarters for Repairs

Every make of instrument, renewed by Skilled Workmen.

Our Shops are located at Jamaica Plain, Boston, Mass.

Buff & Buff Mfg. Company

HENRY A. BUFF, President.

Hayward Buckets

Use this Class "E" Clam Shell Bucket for handling crushed stone, gravel, sand and other bulk materials.

THE HAYWARD CO., 48-50 Church St., N. Y.

GAS STORAGE TANKS

• Whether you want the conventional high-pressure units or something special—send us your inquiries. COLE can build you the kind of high-pressure tanks or vessels you require . . . any size, any shape, any metal.

Our 98 years experience in the design and fabrication of metal tanks may be of help to you. Write for catalog—"Tank Talk."

R. D. **COLE** MFG. CO.

NEWNAN, GA., Established 1854

TANKS • TOWERS • VESSELS

CYLINDERS

U. S. POSSESSIONS

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Montgomery Constr. Co.**, 803 W. Main St., Grove City, Pa., LB $1,943,226, airmens dormitories and mess halls at Ramey Air Force Base, Inv. 52-121, AGUADILLA, PUERTO RICO. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. Bids Apr. 11. CD 3/6.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Que., Bagotville—ARMAMENT—B.A. 5/6—M. P. McAndrew, engr., Defence Constr. Ltd., 1247 Guy St., Montreal, Stages I and II, Class II standard armament bldg. at R.C.A.F. Station, Job 1938, Approx. $300,000. Plans deposit $100.

BIDS ASKED—BUILDINGS

Que., St. Hubert—ARMAMENT—B.A. 5/6—M. P. McAndrew, engr., Defence Constr. Ltd., 1247 Guy St., Montreal, Que. Stage I and II Class I, standard armament bldg., Job 1939, $350,000. Plans deposit $100.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Greater Vancouver Sewerage & Drainage Bd., 500 Beatty St., Vancouver, B. C., Owner Builds $95,000 trunk sewer along Manitoba St. to serve southern section of Vancouver;

B. C. Concrete Co. Ltd., 1025 W. 77 Ave., Vancouver, B. C., CA, $74,500, supply concrete pipe required for Manitoba St. trunk sewer, VANCOUVER, B. C., Greater Vancouver Sewerage & Drainage Bd, 500 Beatty St., Vancouver, B. C. Awarded Apr. 17. CD 11/16.

Schwenger Constr. Ltd., 1255 Beach Rd., P.O. Box 446, Hamilton, Ont., CA, approx. $450,000, 1 m. g. reservoir, water purification plant, low lift pumping station, COOKSVILLE, ONT. Toronto Twp., Municipal Bldg., Cooksville, Ont. Bids Mar. 17, awarded Apr. 17. CD 3/3.

McNamara Constr. Co. Ltd., 42 Industrial St., Leaside, Ont., LB, $400,000, dredging, LITTLE CURRENT, ONT., Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Apr. 9 CD 4/2.

W. C. Wells Constr. Co. Ltd., 140 Ave. N. N., Saskatoon, Sask., CA, $275,000, water and sewer services for housing at R.C.A.F. Station, SASKATOON, SASK. Central Mortgage & Housing Corp., 400 Kensington Bldg., Winnipeg, Man. Bids Mar. 5. CD 2/25.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Continental Can Co. of Canada Ltd.**, 25 King St. W. Toronto, Ont., Owner Builds, $2,500,000, Canning PLANT on 40 acre site, BURNABY, B. C. J. Fedosky, Continental Can Co., 135 S. La Salle St., Chicago, Ill., U. S. A., engr.

Kenny Constr. Co. Ltd., P.O. Box 380, Yarmouth, N S., CA, $472,000, Central HEATING PLANT, YARMOUTH, N. S. Govt. of Canada, Dpt. National Defence, Cartier Sq., Ottawa, Ont.

Grisenthwaite Constr. Co., Ltd., 637 Parkdale Ave North, Hamilton, Ont., Owner Builds, $900,000 100 one and one half story, frame, brick veneer HOUSES, HAMILTON, ONT.

▲ **A. Longo & Son Constr.**, 415 Lakeshore Rd., Mimico Ont., Owner Builds, $2,000,000, five APARTMENT BLOCKS, MIMICO, ONT. Stanford & Wilson, 373 Church St., Toronto, Ont., archt.

Desourdy Constr. Ltee, 143 North St., Cowansville, Que., CA, $434,000, 1 story, 125x775 ft., rein.-con., steel, brick, block PLANT UNIT, Westmount St., near C.P.R. tracks, COWANSVILLE, QUE. Albany Felt Co. Canada Ltd., Cowansville, Que. G. A. Estabrook, c/o owner, engr.

LATIN AMERICA

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **F. S. West Co.**, Chronicle Bldg., Houston, Tex., U.S.A., Approx. $2,250,000. 2,500 gal. daily natural gasoline PLANT, TIGRE FIELD, near Guayaquil, ECUADOR, Manabi Exploration Co., Guayaquil, Ecuador.

Proposed Projects

WATER SUPPLY

Calif., Corcoran—City, City Hall, voted bonds, imprv. municipal water system, $150,000. CD 2/6.

Calif., Fairfield—City, City Hall, voted $240,000 bonds 2 m.g. gal. reservoir, etc. CD 2/21.

Fla., Melbourne—City, WW and sanitary sewer imprvs. $600,000. Robert & Co. Assocs., 96 Poplar St., Atlanta, Ga., engrs. CD 5/11/48, under Sewers, Waste Disposal.

▲ **Fla., St. Petersburg**—City, WW imprvs. $5,241,000.

▲ **Ga., Decatur**—DE Kalb Co., Court House, Decatur, voted bonds, WW imprvs., $1,000,000. CD 3/3.

Ia., West Des Moines—City, water system extensions, imprvs. $400,000.

Mich., Bay City—City, Water Dpt., water sys., water main crossing river to replace 2 small mains, $200,000. CD 10/30/50.

Miss., West Point—City, voted $507,000 bonds WW imprvs. CD 3/24.

Mo., Drexel—City, voted $138,000 bonds Apr. 8. water sys. CD 4/15.

N. C., Oxford—Town, water supply dam. $160,000. L. E. Wooten & Co., 306 S. Dawson St., Raleigh, consult. engr. CD 4/3.

Tenn., Madison—Madison Real Estate Co., Madison, WW for 90-acre sub-division. $100,000.

Tex., Irving—City, bond election May 24, rehabilitation and replacing undersized water mains, $301,000; new c.i. water lines, extens. of distr. and mains, $410,000; 2 steel elevated storage tanks, $100,000 water supply well, $48,000. Koch & Fowler, 3900 Lemmon St., Dallas, consult. engrs. CD 4/11.

Tex., Longview—White Oak Water Dist., c/o C. F. Usborne, Rte. 4, Longview, water supply line, $200,000; water filtration plant unit, $80,000; drilling, developing water well or wells, $75,000, White Oak, near here. Homer Hunter, 3704 Abrams Rd., Dallas, consult. engr.

Wash., Everett—City, City Hall, reline tunnel between Sultan River diversion dam and Lake Champlain, $600,000; two reservoirs, $400,000. John W. Cunningham & Assocs., Spalding Bldg., Portland, Ore., consult. engrs. CD 7/26/45.

Wis., Fond du Lac—City, well, reservoir, etc. pump stations, mains, etc. $725,000. Consoer, Townsend & Assocs., 351 E. Ohio Ave., Chicago, Ill., consult. engrs.

SEWERS, WASTE DISPOSAL

Ala., Mobile—City, sewage treatment plant to relieve pollution in Mobile Bay Oyster Beds. $300,000. Ewin Eng. Corp., P.O. Box 361, consult engrs.

Calif., Davis—City, City Hall, defeated bonds, city drainage project, $225,000. CD 3/13.

Calif., Greenfield—City, City Hall, voted bonds sewerage system, $120,000. CD 4/8.

▲ **Calif., Hayward**—City, City Hall, voted $1,700,000 bonds, municipal sewage disposal project. Harry N. Jenks, 63 Crescent Dr., Palo Alto, consult. engrs. CD 3/6.

Calif., Isleton—City, City Hall, voted bonds, sewage disposal plant, $125,000. CD 3/20.

Calif., Los Gatos—City, City Hall, defeated bonds, storm drainage sewers, $150,000. CD 2/21.

Calif., Martinez—City, City Hall, voted $670,000 bonds sewage treatment plant. CD 3/25.

Calif., Millbrae—City, City Hall, voted $400,000 bonds, sewage disposal plant. E. P. Wilsey, 1126 Broadway, Burlingame, city engr. CD 3/13.

Calif., Pismo Beach—City, City Hall, sewage disposal project, $250,000, Pacific Engrs. & Surveyors, Inc., 57 Palm St., San Luis Obispo, consult. engr. and Harry N. Jenks, 63 Crescent Dr., Palo Alto, consult. sanitary engr.

Calif., Sausalito—Sausalito Marin City Sanitary Dist., Sausalito, voted $775,000 bonds, sewage disposal project. Harry N. Jenks, 63 Crescent Dr., Palo Alto, and J. C. Oglesby, 1115 Fifth Ave., San Rafael, consult. engrs. CD 3/13.

Ga., Decatur—DeKalb Co., Court House, voted bonds, sanitary sewer imprvs. $250,000.

Ind., West Lafayette—City and Purdue University, West Lafayette, sewage disposal plant in Wabash River bottom lands, adjacent to Nickel Plate R.R. tracks.

Kan., Clay Center—City, defeated $213,900 bonds. sewage plant. CD 3/26.

Mass., Lexington—Town, Bd. Selectmen, Town Hall, sewers, $210,000.

Miss., West Point—City, voted $560,000 bonds, sanitary sewer imprvs. CD 3/24.

O., Sidney—City, sewage disposal plant, $350,000. CD 3/12/46.

O., Troy—City, Homer Anderson, service dir., expand sewerage sys. and imprv. sewage disposal plant. $850,000. CD 10/5/49.

▲ **Pa., Washington**—Joint Auth. of Washington and East Washington, Washington, sewage disposal plant, Chartiers Valley. $2,153,000. Morris Knowles, Inc., 1312 Park Bldg., 351 5th Ave., Pittsburgh, consult. engr.

Tex., Houston—George Haikin & Joe Sachs, 2107 North Blvd., sanitary sewers, $60,000; storm sewers, $60,000 in an extens. south of Lauder Rd. E. B. Mansfield, 3803 Main St., consult. engr.

▲ **Tex., Irving**—City, bond election May 24, sanitary sewer lines, collection sys., existing sys. rehabilitation, $1,554,380; doubling sewage treatment plant, $87,120. Koch & Fowler, 3900 Lemmon St., Dallas, consult. engrs. CD 4/11.

Tex., Lexington—City, voted $100,000 bonds Apr. 8, sewage disposal plant and collection sys. The Marvin Turner Engineers, Nalle Bldg. Annex, Austin, consult. engrs.

BRIDGES

▲ **Mass., Boston**—State, Metropolitan Dist. Comn., 20 Somerset St., Boston, overpass and bridge wid'n. junction of Northern Artery and Washington St., bridge wid'n. over railroad at Squires Plant, Somerville. $1,750,000.

Mass., Boston—Commonwealth of Mass., Metropolitan Dist. Comn., Parks Div., 20 Somerset St., underpass River St., Cambridge. $800,000. Abbott Assoc., Inc., 131 State St., Boston, consult. engr.

▲ **TENNESSEE-MISSOURI** — Tennessee-Missouri Bridge Comn., Caruthersville, Mo.
4 mi. toll bridge and approaches over Mississippi River from Dyersburg, Tenn., to Caruthersville, Mo. $6,000,000. Sverdrup & Parcel, Inc., Syndicate Trust bldg., St. Louis, Mo., consult. eng. DeLeuw, Cather & Co., 150 N. Wacker Dr., Chicago, Ill., made traffic survey. Preliminary soundings for pier locations awarded to Raymond Concrete Pile Co., 706 Chestnut St., St. Louis, Mo., $9,380.

STREETS AND ROADS

▲ **CONNECTICUT**—State Hy. Dpt., State House, Hartford,

Fairfield Co.—thruway from outskirts of New Haven to New York State Line. $100,000,000.

Georgia—State Hy. Dpt., Atalnta,

Chatham Co.—imprv. Hy. 17. $278,000.

▲ **GEORGIA**—State Turnpike Auth., State Capitol, Atlanta,
65 mile toll road from Cartersville, Ga. to Tennessee State line. J. E. Greiner Co., 1201 St. Paul St., Baltimore, Md., and Coverdale & Colpitts, 120 Wall St., New York, N. Y., make traffic studies.

▲ **Ga., Atlanta**—City and Fulton Co., c/o Atlanta City Clerk, City Hall, bond election June 2, completion Atlanta Expressway System, $12,700,000. CD 1/21/44.

▲ **Ga., Decatur**—HOSPITAL—DeKalb Co., Court House, voted bonds, hospital. $1,000,000. CD 3/3.

Ga., Fitzgerald—City, paving 8 mi. city streets, $100,000.

Mass., Boston—State, Metropolitan Dist. Comn., 20 Somerset St., Boston, hy. extension O Coony Parkway from Pope's Hill R.R. brilge to Neponset Circle, $250,000.

Mass., Lexington—Town, Hy. Dpt., Town Hall, street constr. $105,000.

▲ **NEW YORK**—State P. Wks., The Governor Afred E. Smith State Office Bldg., Albany, Zone 1.

Saratoga Co.—arterial route system in Saratoga Springs, incl. North-South Arterial, East-West Arterial, Ballston Ave. Arterial, Route 29 Connection. $2,622,000.

O., Cleveland—Cuyahoga Co., Court House, reconstruct 2 mi. sect. Warrensville Center Rd. between Fairmount Blvd. in Shaker Heights and Mayfield Rd. in South Euclid. $730,000. Albert S. Porter, Standard Bldg., co. engr. CD 11/13.

O., Toledo—City, City Hall, imprv. Sherwood Rd. from Detroit Ave. to River Rd. $150,000; improv. 131 St. from Summit St. to Edgewater Dr. $85,000; wid'n., repave Navarre Ave. from Woodville Rd. to Toledo Terminal R.R., $161,180. M. J. Curtis, city street div. engr. CD 10/17/49.

▲ **OKLAHOMA**—State Hy. Dpt., Capitol, Oklahoma City,

Harper Co.—18 mi. new highway across Harper Co. for U. S. 283, $750,000.

Pittsburg Co.—wid'n. U. S. 69 from McAlester to Savanna, $300,000. G. H. Bittle, c/o owner, engr. CD 10/12/50.

Tex., Irving—City, bond election May 24, street imprvs. and paving, $125,000. Koch & Fowler, 3900 Lemmon St., Dallas, consult. engrs. CD 4/11.

VERMONT—State Hy. Dpt., State House, Montpelier,

Greensboro, Wheelock, Glover—road constr. Approx. $400,000.

N. B., St. John—City, City Hall, street imprvs. and paving for 1952, $306,500.

EARTHWORK, WATERWAYS

Miss., New Albany—Union County Drainage Comn., Court House, drainage imprvs. $228,000.

O., Toledo—City, City Hall, flood control at Garland Beach area in Point Place; construct 2 splashboards on existing concrete breakwater from 135 to 145 Sts. and install dike on 322 St., from breakwater north to lagoon, $70,000; alternative, construct new dikes or fill the lagoon, $400,000. John H. Davis, constr. Engr., c/o owner.

▲† **Texas**—United States and Mexico Govts. c/o Headquarters, USA, Laredo, Tex., initial work on projected Anzaldias Diversion Dam, Rio Grande River, south of Mission. $1,500,000.

Tex., Raymondville—Willacy County Water Control & Imprvt. Dist. 1, Raymondville, voted bonds, irrigation canals, $300,000; irrigation sys. rehabilitation, $150,000; irrigation pumping unit, $50,000. CD 4/11.

AIRPORTS

▲† **Ala., Montgomery**—FACILITIES—Alabama Air National Air Guard, State Capitol, Montgomery, facilities at Dannelly Field, $2,000,000.

▲ **Calif., San Francisco**—PIERS—City and San Francisco Co., City Hall, concourse piers at San Francisco International Airport, $1,072,500. CD 1/12/45.

† **N. C., Cherry Point**—A & E SERVICES BLDG.—Dpt. Navy, P. Wks. Office and Officer In Charge of Construction, Sixth Naval Dist. P. O. Box 1365, Naval Base, S. C., A & E services for the extens. to overhaul and repair Bldg. No. 137, U. S. Marine Corps Air Station. Northrup & O'Brien, 402 Reynolds Bldg., Winston-Salem, consult. engrs. 1/12/45.

† **O., Akron**—FACILITIES—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., Air National Guard

Facilities, Akron-Canton Airport. Project Architects & Engineers, 1030 Schofield Bldg., Cleveland, Zone 15, consult. engrs. CD 10/22.

O., Dayton—AIRPORT LIGHTING—City, City Hall, lighting at Dayton Municipal Airport, Vandalia. $103,426.

† Tex., Wichita Falls—WATER LINE—U. S. Eng., Box 61, Tulsa, Okla., water line from Wichita Falls to Sheppard Air Base. $200,000. CD 2/12/51.

LATIN AMERICA

▲ Mexico—Srla. Comunicaciones y Obras Publicas (Communication & P. Wks. Ministry), Mexico City, plans by Contreras & Lascurain, c/o owner, 500 mi. road, Campeche-Yucatan and Quintana Roo. CD 10/31/50.

▲ Mexico, Las Truchas—Srla. de la Marina (Navy Dpt.), Lic. Raul Lopez Manchez, Secy., Mexico City, plans seaport. $1,000,000.

▲ Mexico, Puerto Juarez—Srla. de Bienes Nacionales (National Properties Ministry), Mexico City, plans by Carlos Contreras, Juarez, 4-1004, Mexico City, tourist port. $5,000,000.

PUBLIC BUILDINGS

Calif., Monterey—SCHOOL—Monterey City Elementary and Monterey High School Dist., Box 1031, Monterey, plans by Thomas S. Elston, Jr., P.O. Box 1826 Carmel school on site between Ord Village and Bay View Village, Fort Ord. $766,576. CD 6/22/49.

▲ Calif., Redwood City—COURT HOUSE—San Mateo Co. Court House, court house addns. $2,500,000. CD 5/24/46.

▲ Calif., San Leandro—SCHOOLS—San Leandro Unified School Dist., 451 Hepburn St., voted $4,250,000 bonds, new schools. CD 3/26.

▲ Calif., Victorville—HOUSING—Federal Housing Admin. 112 W. 9 St., Los Angeles, 65 rental and 65 sales housing units, $1,000,000.

▲ Ga., Decatur—HOSPITAL—DeKalb Co., Court House, voted bonds, hospital. $1,000,000. CD 3/3.

▲ Ill., Fox Lake—SCHOOL—School Dist. 124, Fox Lake, plans by Fisher & Bryant, 79 W. Monroe St., Chicago, Zone 3, high school addn. $1,200,000. CD 12/26/50.

▲ Ill., Libertyville—SCHOOL—School Dist. 120, Park St., plans by Childs & Smith, 20 N. Wacker Dr., Chicago, Zone 6, high school, $1,750,000. CD 1/4/51.

▲ Ind., Indianapolis—SCHOOLS—Bd. School Comrs., M. V. Bailey, bus. dir., 150 N. Meridian St., Zone 4, plans by McGuire & Shook, 1400-01 Fletcher Trust Bldg., Zone 4, brick Howe High School, 4900 Julian Ave., $500,000; plans by D. A. Bohlen & Son, 930 State Life Bldg., Zone 4, brick Emrick Manual Training High School, $680,000; plans by John G. Sohn, 610 Indiana Trust Bldg., Zone 4, brick, Washington High School addn, 2215 W. Washington St., $300,000. Plans by O. A. Tislow, Architects & Builders Bldg., Zone 4, brick, Grade School 89, 5950 E. 23 St., $500,000.

Ky., Madisonville—LIGHT PLANT—City, Madisonville, light plant, $850,000.

La., Bossier City—HOUSING—Bossier City Housing Auth., plans by Jos. H. Gaylord & Co., 722 Neil P. Anderson Bldg., Fort Worth, Tex., 60 housing units, La 42-1, $450,000; 74 housing units, La 42-2, $525,000. CD 10/15/51.

Mass., Amherst—DORMITORIES—State, Dpt. Educ., 200 Newbury St., Boston, 2 dormitories for women, $850,000.

Mass., Spencer—SCHOOL—Town, School Bldg. Comn., Town Hall, plans by Franklyn R. Williams, 22 Elm St., Worcester, elementary school, $580,000. CD 2/5/51.

Mass., Worcester—SCHOOL—City, School Dpt., 32 Franklin St., plans by G. Adolph Johnson, 390 Main St., and Walter Gopins, assoc. archt., 96 Mt. Auburn St., Cambridge, Junior High School, near Rexhame Rd. and Burncoat St. $850,000. CD 12/28.

▲ Mich., Adrian—SCHOOLS—Bd. School Comrs., Adrian, defeated $2,800,000 bonds Apr. 8, 2 new combination grade and junior schools, 6-room addn. to McKinley School. CD 2/28.

Mich., Bay City—LIGHT PLANT—City, Municipal Light Dpt., imprvs., extensions municipal light plant, $500,000.

Minn., Clarkfield — SCHOOL — Bd. Edc., Independent School Dist. 43, G. O. Johnson, clk., voted $495,000 bonds school, $500,000. H. H. Swanson, 500 Sexton Bldg., Minneapolis, archt. CD 7/11/51.

Minn., Fairmont—SCHOOL—Bd. Educ., G. A. Eddie, supt., plans by Hills, Gilbertson & Hayes, 1409 Willow St., Minneapolis, high school addn. $900,000.

Minn., Minneapolis—SCHOOL—Bd. Educ., E. H. Engler, archt.-engr., 807 Broadway, N.E., plans by Haxby, Bissell & Belair, 1111 Nicollet Ave., Minneapolis, grade school, 57 St. and Emerson Ave. South, $500,000. CD 10/17/51.

† N. Y., Albany—ARMORY—U. S. Eng., 80 Lafayette St., New York, Zone 13, plans by Marcus T. Reynolds, 143 Washington Ave., DRC Armory. $500,000-$1,000,000.

N. C., Asheboro—SCHOOL—City, voted bonds, school imprvs. $975,000.

▲ Okla., Oklahoma City—SCHOOLS—Bd. Educ., 400 N. Walnut St., plans by Noftsger & Lawrence, 2756 N. W. 23 St., John Marshall High School addn., $400,000. plans by Bailey & Bozalls, Colcord Bldg., Prairie Queen School, S. W. 59 and Western Sts., $400,000; plans by Coston & Frankfurt, 306 E. Madison St., Northwest Junior High School, 36 and Independence Sts., $600,000; plans by Hudgins, Thompson & Ball, 1100 W. Main St., remodel Taft High School into Senior High School, $350,000; plans by Bramblett & Baldwin, Petroleum Bldg., elementary school, S. W. 40 and Villa Sts., $400,000; plans by Wright & Selby, Hightower Bldg., new S. W. Junior High School, S. W. 40 and Drexel Sts., $450,000. CD 3/31.

▲ Pa., Conneautville—HIGH SCHOOL—Conneaut Valley Joint School, Conneautville, plans by Kling & Frost, 611 Wick Ave., Youngstown, O., Junior and Senior High School between Conneautville and Spring Boro. $1,024,000.

▲ Pa., Ivyland—HIGH SCHOOL—Warminster Twp. School Bd., Ivyland, plans by Micklewright & Mountford, 72 Ewing St., Trenton, N. J., high school. $1,000,000. CD 5/26/50.

Pa., Murraysville—SCHOOL—School Dist. Franklin Twp., Murraysville, plans by Enos Cooke, 316 Charles St., New Kensington, 2 story, steel frame, brick, block grade school, near here. $800,000.

† Tenn., Milan—BUILDINGS—U. S. Arsenal, c/o Col. C. W. Meldrum, Milan, rebuilding 10 bldgs. damaged by storm. $500,000.

Tenn., Nashville—HIGH SCHOOL—Davidson Co. Bd. Educ., Court House, Isaac Littleton Junior High School. $560,000.

▲ Tex., Cleburne—HOUSING—Cleburne Housing Auth., Cleburne, plans by Joseph H. Gaylord Co., 722 N. P. Anderson Bldg., Fort Worth, 150 housing units. $1,125,000.

Tex., San Antonio—SCHOOL—Alamo Heights Independent School Dist., 150 E. Fair Oaks St., Alamo Heights, San Antonio, voted bonds, 44,000 sq. ft. school. $545,000. Harvey P. Smith & Assoc., 1204 Natl. Bank Commerce Bldg., archts. CD 3/10.

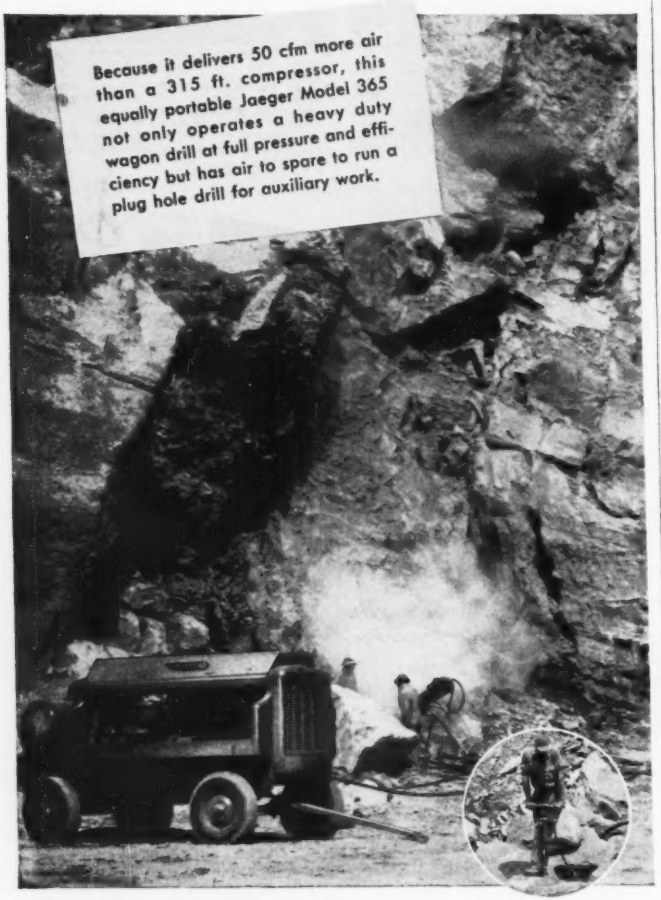
▲ Tex., Sherman—HIGH SCHOOL—Sherman Independent School Dist., Sherman, voted bonds, high school. $1,115,000.

▲ Tex., Victoria — SCHOOLS — Victoria Independent School Dist., Victoria, 16-room elementary school, 10-acre site, $300,000; elementary school, $325,000; 30-station Junior High School, $475,000.

▲ Va., Manassas—SCHOOL—Prince William Co. School Bd., Manassas, voted bonds, school imprvs. $2,700,000. CD 3/18.

10 Reasons Why UNIT is a BETTER MACHINE
ONE-PIECE GEAR CASE
FULL VISION CAB
TWIN HOOK-ROLLERS
AUTOMATIC TRACTION BRAKES
DISC CLUTCHES
DROP-FORGED PARTS
INVOLUTE SPLINES
HEAT TREATING
WORM DRIVE
STRAIGHT IN LINE MOUNTING
UNIT is the ONLY machine on the market with all these time-tested, outstanding features . . . and every one is backed by more than a quarter century of engineering skill and craftsmanship.
Compare UNIT, part for part, feature for feature, with any other crane or shovel, and you will realize why UNIT leads the field in excavating and material handling equipment.
Why not investigate what UNIT can do for you? Get the complete story — write today for free booklet "10 Reasons Why UNIT Is A Better Machine."
UNIT CRANE & SHOVEL CORP.
6315 W. BURNHAM STREET
MILWAUKEE 14, WIS., U. S. A.
Available in Crawler and Mobile Models . . . ½ and ¾ yard Excavators . . . Cranes up to 20 tons lifting capacities . . . Fully convertible to all attachments.
UNIT
SHOVELS • DRAGLINES • CLAMSHELLS • CRANES • TRENCHERS • MAGNETS

Jaeger "air plus" means 15% to 25% more air from portable compressors


Because it delivers 50 cfm more air than a 315 ft. compressor, this equally portable Jaeger Model 365 not only operates a heavy duty wagon drill at full pressure and efficiency but has air to spare to run a plug hole drill for auxiliary work.

As compact and portable as compressors of much less capacity, Jaeger Air Plus units produce, at the rock face, the air you need to operate your drills at full efficiency. Model 250 fully powers 2 heavy rock drills. Model 365 fully powers 3 heavy rock drills or one heavy wagon drill plus a plug hole drill. Model 600, introduced by Jaeger, was the first to run 2 heavy wagon drills efficiently. For increased production with low cost air power, see your Jaeger distributor or send for Catalog JC-1.

THE JAEGER MACHINE COMPANY

200 Dublin Ave., Columbus 16, Ohio

PUMPS • MIXERS • AGGREGATE SPREADERS • CONCRETE SPREADERS, FINISHERS

Va., South Boston—SCHOOL—Halifax Co. Bd. Educ., South Boston, Halifax Training School addns. $770,000.

W. Va., Nitro—HOSPITAL—City and Putnam Co., City Hall, hospital, $500,000.

Ont., Parkhill—SCHOOL—North Middlesex High School Bd., M. Telfer, secy., Parkhill, plans by D. H. Gillin, 284 Dundas St., London, 1 story, brick, steel high school, $385,000. CD 1/2/45.

Que., Montreal—SCHOOL—Province of Quebec, Dpt. Education, Quebec City, building for Jacques Cartier Normal School. $500,000.

COMMERCIAL BUILDINGS

▲ Calif., Fontana—HOMES, etc.—Owners, c/o Harms Bros. Constr. Co., 4261 Stockton Blvd., Sacramento, 4,000 homes, residential and business development. $45,000,000.

▲ Calif., Glendale—HOSPITAL—Glendale Hospital & Sanatorium, 1509 E. Wilson Ave., plans by J. Dewey Harnish, 222 E. "B" St., Ontario, 5 story rein.-con. hospital addn. $1,000,000. CD 4/13/51.

Calif., Walnut Creek—HOSPITAL—Permanent Hospital Foundation, Broadway and W. MacArthur Sts., Oakland 45-bed hospital, $750,000.

▲ Mass., Williamstown—STUDENT UNION—Williams College, Williamstown, plans by Perry, Shaw, Hepburn, Kehoe & Dean, 31 St. James Ave., Boston, student union bldg. $1,000,000.

▲ Mich., Detroit—CHURCH and PARISH HOUSE—St. Martha's Episcopal Church, 63 E. Hancock St., plans by Giffel & Vallet, Inc., 1000 Marquette Bldg., 1 story, bsmnt., brick, stone, concrete church and parish house, Joy Rd. near Greenfield, $1,000,000. CD 9/14/50.

Minn., Fergus Falls—HOSPITAL—St. Luke's Hospital, H. E. Swanson, trustee, plans by Magney, Tusler & Setter, 202 Foshay Tower, Minneapolis, 3 story hospital addn. $800,000.

N. Y., Flushing—SCHOOL—Roman Catholic Church of St. Ann, c/o Robert Reily, archt., 45 W. 45 St., New York, Zone 19, 3½ story, 101x172 ft. school and auditorium, 58 Rd. and 146 St. $700,000.

N. C., Hickory—AUDITORIUM—Lenoir-Rhyne College, Hickory, plans by Clemmer & Horton, Hickory, P. E. Monroe Auditorium. $500,000.

Pa., Middletown—RESIDENCES—Owner c/o Carl J. Johnson, 853 North Ave. Springfield, residential development, in Middletown Twp. $500,000.

Tex., Amarillo—Y.M.C.A. BLDG.—Young Men's Christian Assn., Amarillo, plans by Walsh & Hazelwood, Paramount Bldg., brick, masonry, structural steel Y.M.C.A. bldg., inside concrete swimming pool. $650,000.

Tex., Amarillo—Y.W.C.A. BLDG.—Young Women's Christian Assn., Amarillo, plans by Macon O. Carder, Fisk M & P Bldg., stone, brick Y.W.C.A. bldg. $600,000.

▲† Tex., Harlingen—HOUSING—Federal Housing Admin., C. T. MacLeod, dist. dir., 610 S. Flores St., San Antonio, 250 housing units. $1,875,000.

Tex., Pasadena—SHOPPING CENTER—George Mountel, Winkler Dr. extens. Houston, 125,000 sq. ft. masonry shopping center. $750,000.

Utah, Provo—APARTMENTS—Brigham Young University, Provo, plans by Fred L. Markham, 45 N. University St., 16 bldgs., consisting of apartments to house 800 students.

▲ Wash., Bremerton—HOUSING—View Crest Garden Apartments, Inc., 308 Lowman Bldg., Seattle, Zone 4, plans by E. W. Morrison, 719 2 Ave., Seattle, Zone 4, 300-unit housing, 2 and 3 units to a bldg., at View Crest, $3,000,000.

▲ Wash., Seattle—APARTMENT—Lewis Constr. Co., Lowman Bldg., Zone 4, 100-unit apartment, 24 Ave. S. and Winthrop St., $1,000,000.

W. Va., Charleston—HOSPITAL—McMillan Hospital, Morris and Lee Sts., hospital addns. $500,000.

W. Va., Warwood—SHOPPING CENTER—Walter Seabright & B. B. Schenerlain, Hawley Bldg., Wheeling, 1 story, brick, concrete shopping center, $500,000.

▲ Alta., Edmonton—DEPARTMENT STORE—Woodward Stores (Edmonton) Ltd., Edmonton, plans by J. C. Page, 101 W. Hastings St., Vancouver, 2 story, rein.-con. departmental store, 82 Ave. and 106 St., in South Edmonton, $3,000,000.

▲ Que., Hull—HOSPITAL, etc.—Reverend Sisters of Providence, 1431 Fullum St., Montreal, plans by L. Sarra-Bournet, 189 Principal St., 8 story 400-bed hospital, 6 story, 200-bed nurses residence on 57 acre site, Mountain Rd. $4,000,000.

INDUSTRIAL BUILDINGS

Ala., Bessemer—PLANT—Pullman Standard Car Mfg. Co., Bessemer, plant addns. $500,000.

▲ Fla., Fernandina—PLANT—Container Corp. of America, Fernandina, plant addns. $4,000,000.

▲ Fla., Hollywood—PLANT—Superior Electrical Industries, Hollywood, plant addns. $1,000,000.

▲ Ga., Savannah—PLANT—Southern Paperboard Corp., Port Wentworth, Savannah, plant addns. $5,600,000.

▲ Ill., Arlington Heights—FACTORY—Vapor Heating Corp., 80 E. Jackson Blvd., Chicago, Zone 4, 200,000 sq. ft. factory, on 117 acre site, $2,500,000.

▲ Ill., Chicago—FACTORY, etc.—Admiral Corp., 3800 W. Cortland St., plans by Paul Gerhardt, 30 N.

La Salle St., Zone 2, factory and office, Hamilin and Cortland Sts. $3,000,000. CD 8/6.

▲ Ind., La Porte—FACTORY—Allis-Chalmers Mfg. Co., 814 S. 70 St., Milwaukee 1, Wis., plans by Chas. Cole & Son, 226 S. LaSalle St., South Bend, 210,000 sq. ft. factory, $3,000,000.

▲ Mass., Dorchester—BUILDING CENTER—Old Colony Land Co., 15 Kneeland St., Boston, building center, incl. warehouse, showrooms, offices, mfg. bldgs. on 10 acre site, Old Colony Blvd. $1,000,000. Contract for borings, awarded to Raymond Concrete Pile Co., 31 St. James Ave., Boston.

Minn., St. Paul—PLANT—Gould-National Batteries, Inc., First National Bank Bldg., auto starting storage battery plant, Lexington Ave. south of Como Park, $800,000.

▲ Miss., Columbia—PLANT—Southern Naval Stores Co., plant addns. $1,250,000.

Miss., Hattiesburg—PLANT—Hercules Powder Co., Hattiesburg, plant addns. $700,000.

▲ Miss., Moss Point—PLANT—Thikol Corp., Moss Point, plant addns. $1,000,000.

▲ N. M., Monument—REFINERY—Famariss Oil & Refining Co., Hobbs, remodeling, expanding 1,200 bbl. refinery. $1,250,000.

▲ N. C., Charlotte—PARTS DEPOT—Ford Motor Co., 3000 Schaefer St., Dearborn, Mich., service parts depot. $1,000,000.

N. C., Gastonia—PLANT—Gastonia Combed Yarn Corp., Gastonia, plant addns. $800,000. CD 3/27/50.

▲ N. C., Greensboro—PLANT—Morton-Withers Chemical Co., Greensboro, plant addns. $1,250,000.

▲ S. C., Spartanburg—PLANT—Draper Corp., Spartanburg, plant addns. $2,500,000.

▲ Tenn., Elizabethton—PLANT—J. & J. Corrugated Box Corp., 81 Ferry St., Fall River, Mass., plant. $1,350,000.

▲ Tex., El Paso—REFINERY—The Texas Co., 720 San Jacinto St., Houston, refinery modernization and expansion. $1,750,000.

▲ Tex., Fort Worth—PLANT—Chicago Pneumatic Tool Co., c/o James L. Lewis, asst. to pres., 75 E. Wacker Dr., Chicago, Ill., 220x602 ft., steel frame tool plant. $3,500,000. Walter Kidde Engineers-Southwest, Inc., 1205 Holman Ave., Houston, designers. CD 12/12.

▲ Tex., Fort Worth—WAREHOUSE—Wholesale Merchandise Co., 162 Rosedale St., new GSA warehouse. $2,400,000.

▲ W. Va., New Martinsville—PLANT—Columbia Southern Chemical Co., New Martinsville, plant addns. $8,500,000.

▲ Alta., Red Deer—PULP MILL—International Resources Ltd., c/o R. E. Randall, pres. 405 Prospect St., Seattle, Wash., U. S. A., Pulp mill, $13,000,000 H. N. Simpson, Central Bldg., Seattle, 4, Wash., U. S. A. engr. CD 9/25.

▲ Ont., Sarnia—PLANTS—Dow Chemical Co. of Canada Ltd., 204 Richmond St. W., Toronto, ethylene plant, $3,500,000; styrene plant, $4,000,000; plant, $2,000,000. CD 4/1/47.

▲ Que., Thetford Mines—MILL—Asbestos Corp. Ltd., Canada Cement Bldg., Montreal, mill and associated structures. $5,000,000. Ford, Bacon & Davis, Inc., 39 Broadway, New York, N. Y., U. S. A., engr.

UNCLASSIFIED

California—RURAL DISTRIBUTION LINES—Anza Electric Co-operative, Anza, 210 mi. rural distrn. line, 20 mi. 33 kv transmission line and sys. imprvs., Riverside Co. $750,000.

Calif., Lynwood—SWIMMING POOL—City, 1331 Plaza St., voted bonds, swimming pool, $400,000. CD 1/25.

Indiana—GAS DISTRIBUTION SYSTEM, etc.—Northern Indiana Public Service Co., 5265 Hohman St., Hammond, expanding gas distr. system with pipe line along State Rd. west of Fort Wayne in Aboite Twp., $108,000; expanding gas distr. pipe lines in St. Joseph and Elkhart Counties, $413,000.

N. C., Greensboro—PIPE LINE—The Texas Co., Greensboro, petroleum pipe lines. $400,000.

O., Cleveland—ESCALATORS—Cleveland Transit System, 1404 E. 9 St., five moving stairways (escalators). $200,000. Morse W. Rew, c/o owner, ch. engr. CD 2/9/50.

▲ Oregon—RURAL DISTRIBUTION LINES—Coos-Curry Electric Co-operative, Coquille, 64 mi. rural distr. line, sys. imprvs. and completion of previously authorized constr. Coos Co. $1,350,000. CD 3/29/49.

South Carolina—RURAL DISTRIBUTION LINES—Blue Ridge Electric Co-operative, Pickens, 100 mi. rural distr. lines, Oconee Co. $270,000. Southern Eng. Co., 1000 Crescent Ave. N. E., Atlanta, Ga., consult. engr. CD 6/8/50.

Tenn., Chattanooga—RAILROAD TRACKS—City, City Hall, relocation of railroad tracks. Approx. $500,000. Sullivan & Hoebel, Bank of Knoxville Bldg., Knoxville, consult. engrs. CD 8/6/47.

Texas—TELEPHONE POLE LINES—Etex-Telephone Co-operative, REA Bldg., Gilmer, telephone pole lines at Gilmer, Upshur Co. $450,000.

▲ Texas—RURAL DISTRIBUTION LINES—Medina Electric Co-operative, Hondo, construct lines and sys. imprvs., Medina Co. $3,700,000. CD 12/12/49.

W. Va., Charleston—SPORTS BLDG.—Kanawha Co., plans by Vecellio & Kreps, Odd Fellows Bldg., sports bldg. at Coonskin Park, $300,000.

121' Monocord timber trusses for saw-filing room designed and fabricated by Weyerhaeuser Timber Company, Tacoma, Wash.

TIMBER FOR INDUSTRIAL CONSTRUCTION

The need for clear floor space in industrial buildings is provided nicely with clear span timber trusses.

For civilian and defense construction our book "Typical Designs of Timber Structures" proved so helpful to architects and engineers during World War II that we have published a special printing as your guide in designing for present needs.

This edition features 88 new typical lumber designs based on the National Design Specification published by the National Lumber Manufacturers Association. Designs for light and heavy frame buildings of all types are featured.

While the supply lasts, this 116-page book will be sent FREE to architects and engineers who write us or mail the coupon below.

Timber fabricators in all sections of the country are ready to serve you—and there is plenty of lumber for all needs.

TIMBER ENGINEERING COMPANY, 1319 18th St., N.W., Washington 6, D. C.

Please send me FREE copy of "Typical Designs of Timber Structures."

We plan to build a _____

NAME _____

COMPANY _____

STREET _____ CITY _____ STATE _____

ENR

Studying how to cut processing and handling costs?

Find out how Yeomans can help you.

See what a wide variety of materials are being handled with extraordinary success by Yeomans Pumps or Pneumatic Ejectors.

CHEMICAL PROCESSING

brine
heavy chemicals
melted phosphorous
zinc compound

INDUSTRIAL

foundry sand
pulp
paper products
plastics
grease
sludge
machine tool sludge with cuttings
ash-pit water

FOOD PROCESSING

cane juice—unstrained
sugar
bagasse
lima beans
mayonnaise
packing house wastes
cannery wastes

It's "good business" to find out how Yeoman's Pumps are solving handling problems exactly like yours. Send for Manual 2300, and include details of your operation. Use the Coupon.

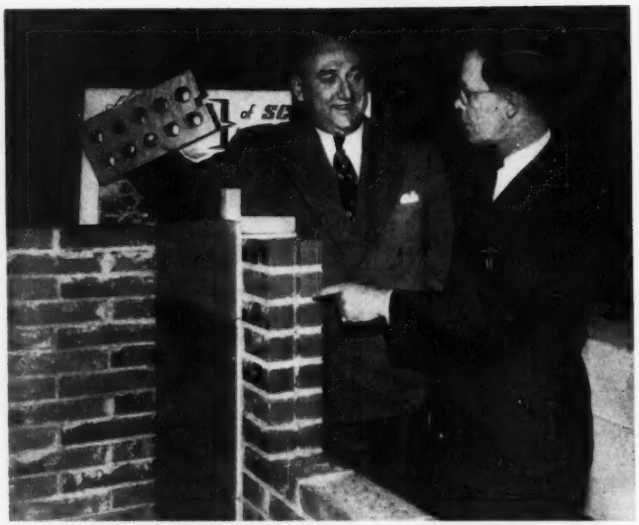
YEOMANS PUMPS

PNEUMATIC EJECTORS AND SEWAGE TREATMENT EQUIPMENT

YEOMANS BROTHERS COMPANY
1445 N. Dayton Street
Chicago 22, Illinois

Yes, please send Manual 2300

Name .....
Company .....
Address .....
City and Zone .....
State .....
Materials Pumped .....



CO-OPERATIONAL PRIDE—Douglas Whitlock, Board Chairman of Structural Clay Products Institute shows how easily new SCR brick can be handled while Robert B. Taylor, SCP Research Foundation Director points to casement jamb slots.

SCR brick speeds pace of current masonry trends

James M. Connolly
Associate Editor

After more than two years of research and development the Structural Clay Products Research Foundation announced today the first of a series of major developments—SCR brick. A structural clay building unit designed to meet requirements of current housing trends, it is six inches thick; a through-the-wall unit that requires no backup materials. In appearance and face size SCR brick is the same as Norman brick, one of the most widely accepted for modern small ranch-type dwellings, but there the similarity ends.

Basic dimensions are 2⅔ in high x 11¼ in long x 5¼ in thick. Laid in the wall with a ½-in mortar joint, the unit is modular in size, but can be used on non-modular designs as well. No special or additional units are needed for jambs, openings or corners. The new brick is cored vertically to reduce weight, ease handling and facilitate laying. Weighing about 10 lb (when made with usual clays and shales), the hole size and their arrangement were devised to duplicate as closely as possible the usual grip and finger spread of a bricklayer in laying regular 4-inchers.

A jamb slot at end of each SCR brick facilitates installation of metal sash when mounted directly in the wall with wood surrounds. When not used for this purpose this slot, along with the ten core holes, takes up excess mortar and prevents any floating tendency of the units until the mortar has set.

• **Union says OK**—Harry C. Bates, bricklayer president, endorsed the product for his union and agreed that its use will stimulate masonry house construction. He praised the size, weight and coring design and at the same time pledged the union's active support to aid its widespread adoption.

• **Building codes say OK too**—More than 90% of the homes erected in 1950 had one-story, load-bearing exterior walls, according to a survey made

by HHFA. Construction trials have proven that the 6-in SCR brick wall can be erected at a wall cost competitive with quality frame construction, according to the Institute. In addition, every major national building code permits 6-in masonry walls for single family one-story residential construction (9-ft walls, 15 ft at gables).

A total of 450 units is required per 100 sq ft of wall area. Approximately 11¼ cu ft of mortar is needed to lay up 100 sq ft of wall whe using full ½-in. thick bed and head joints. This quantity provides for 15% waste, part of which is an allowance for mortar to enter the ten cores. Using this basis, 1,000 SCR brick will require 25 cu ft of mortar.

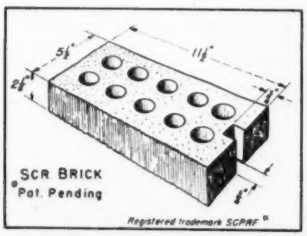
The time and motion studies and actual motion trials made by the Research Foundation have shown that a bricklayer can easily lay these 450 brick (or 100 sq ft) per day. Organizations accepting such a wall include the American Standards Association, National Board of Fire Underwriters, Building Officials Conference of America, Pacific Coast Building Officials Conference, Southern Building Codes Congress and Federal Housing Administration.

The unit is designed for use with 2x2 furring which provides ample cavity to prevent moisture penetration. It also permits easy subsequent wiring and installation of interior surface materials and/or insulation. Using 2x2 furring as recommended, a builder can finish interior walls to obtain any desired U factor (see table). To simplify and further reduce costs, Peterson Products Co., Janesville, Wisconsin developed in co-operation with the Foundation an improved version of the Quikway furring clip (see picture) and it is available through manufacturers handling the new brick.

This is the second major building development of the Structural Clay Products Research Foundation, the first being the SCR insulated cavity wall, with a new pouring type insulation, introduced in April 1951.

Three additional products soon to be introduced by the Institute are:

(*Continued on next page*)



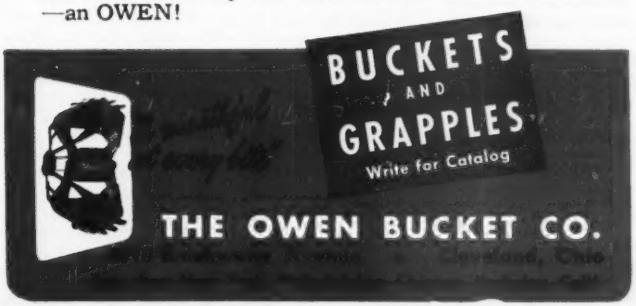
This 4-ton traveling crane of well known high quality expends its energy and efficiency through this 3-ton capacity.

OWEN BUCKET

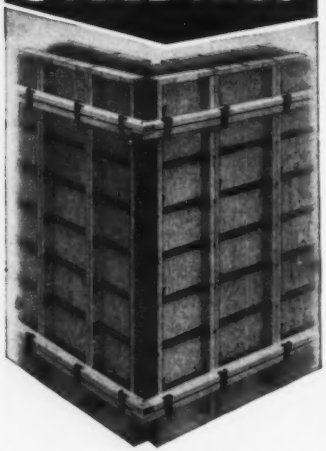
Clay discharged into the craneway is water treated by fog-nozzles to reduce dust and increase water content to aid in ageing.

The 15,000-ton capacity warehouse 840' x 50' is serviced by two cranes and two buckets. Only two men are required to move the clay, combine the mix and feed the bins for the dry pan.

All of which simply proves again that for the greatest returns on the large investment in the crane it is also wisdom to buy the most efficient bucket available —an OWEN!

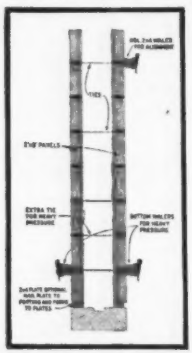


SYMONS FORMS with STEEL RIBS



for HIGH WALLS —FAST POURS

Symons heavy duty Steel Rib forms assemble and strip quickly and easily saving you time and labor costs. Because stripping is simple, and the steel rib reinforces the vital parts, Symons Forms last from 50 to 100 uses . . . this means cost per use is exceptionally low.



Try these forms on a rental basis. Rental charges apply on the purchase price.

To get a comprehensive picture of how Symons forming system works and its cost to you, send in the plans for your next job. We will study your needs and send you a form layout and job cost sheet—no obligation.

Symons

SYMONS CLAMP & MFG. CO. DEPT. E2
4263 DIVERSEY AVE., CHICAGO 39, ILL.

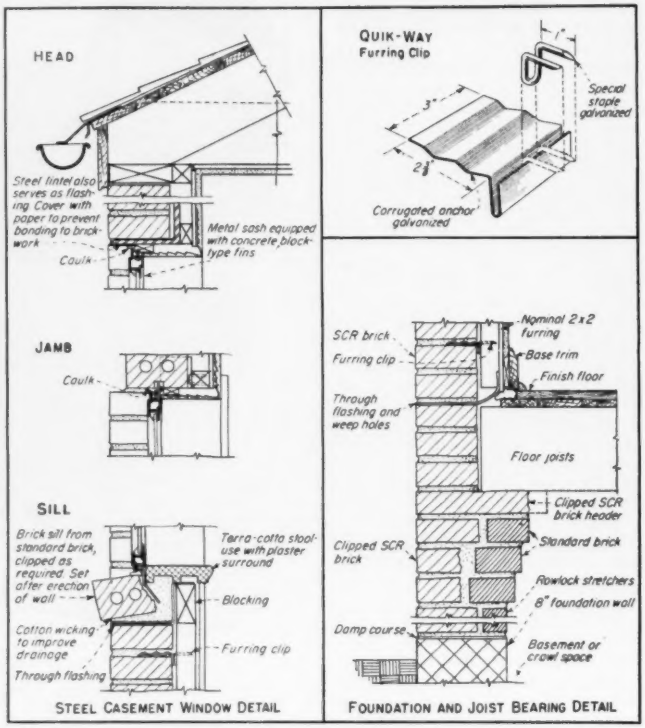
Kindly send information regarding Symons Steel Rib Forms.

Name_____

Address_____

City_____ Zone____ State_____

New products . . .



CONSTRUCTION DETAILS shown here were developed by the architectural firm of Howard T. Fisher and Associates in co-operation with SCP Institute and Research Foundation for use on single-family one-story houses.

(1) the Morgen adjustable steel scaffold; (2) Aquatile, a load-bearing clay acoustical tile with noise reduction coefficient of 20%; and (3) clay tile partition panels, pre-assembled at plants and ready for immediate installation upon arrival at a job site. STRUCTURAL CLAY PRODUCTS INSTITUTE, 1520 18TH STREET, N.W., WASHINGTON 6, D. C.

HEAT TRANSMISSION COEFFICIENTS FOR SCR BRICK WALL

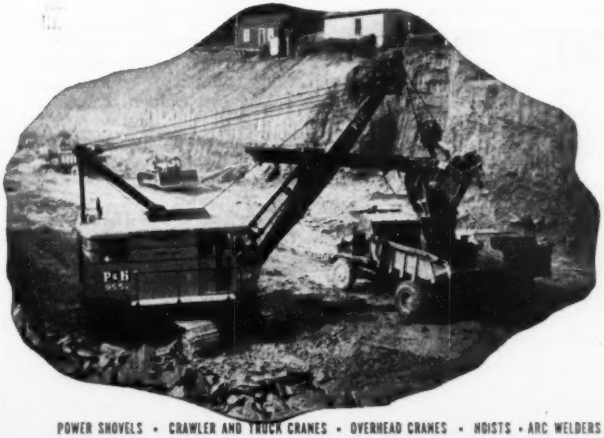
w/ 2 x 2-in. furring and Correction for 15 mph wind velocity

	Factor U
1" roll insulation, ½" insulating board lath, ½" vermiculite plaster	0.12
1" roll insulation, ⅜" gypsum lath, ¾" vermiculite plaster	0.14
1" roll insulation, metal lath, ¾" vermiculite plaster	0.15
1" roll insulation, ⅜" gypsum board (dry wall)	0.16
1" roll insulation, metal lath, ¾" gypsum plaster	0.16
1" roll insulation, ⅜" gypsum lath, ½" gypsum plaster	0.16
⅜" gypsum lath with aluminum foil, ½" vermiculite plaster	0.23
½" insulating board lath, ½" vermiculite plaster	0.23
½" insulating board lath, ½" gypsum plaster	0.25
⅜" gypsum lath with aluminum foil, ½" gypsum plaster	0.25
½" gypsum board (dry wall) with aluminum foil	0.26
Metal lath, ¾" vermiculite plaster	0.33
⅜" gypsum lath, ½" vermiculite plaster	0.33
⅜" gypsum lath, ½" gypsum plaster	0.37
Metal lath, ¾" gypsum plaster	0.40

AND READY FOR ANY JOB

P&H MAGNETORQUE* Electric

Swing is 15% to 25% faster than any 2½ yd. shovel



If it's husky strength you want, this is it! Tough all-welded construction throughout to take pounding and shock loads that would K.O. less rugged machines. It means steady digging — less maintenance — down through the years.

If it's speed, you have it with Magnetorque — speed to out-produce any other machine in the 2½ yd. class — with a swing that's 15% to 25% faster. It's the greatest shovel improvement in 20 years. We'll gladly tell you where to see the 955-A working nearest you. Ask today!

If you want larger capacity, ask for facts about the Model 1055 (3½ yd.).

*T.M. of Harnischfeger Corporation for electro-magnetic type clutch.

HARNISCHFEGER
CORPORATION

4404 W. National Avenue • Milwaukee 14, Wisconsin

POWER SHOVELS • CRAWLER AND TRUCK CRANES • OVERHEAD CRANES • HOISTS • ARC WELDERS AND ELECTRODES • SOIL STABILIZERS • DIESEL ENGINES • PRE-FABRICATED HOMES

TEN SECOND ACTION

MORSE-STARRETT
WIRE ROPE CUTTER

SIMPLE Anyone who can swing a hammer makes perfect cut.

EASY to put where you want it. No. 1 model weighs nine pounds.

FAST cutting assured by precision engineered blade and dies.

CLEAN cut, no frayed or jagged wire, perfect threading or splicing.

SAFE enclosed, locked-in cutting blade prevents accidents.

SEE YOUR DEALER OR WRITE DEPT. "B"

MORSE-STARRETT PRODUCTS COMPANY
1204 - 49th AVENUE, OAKLAND 1, CALIFORNIA

PHOENIX BRIDGE COMPANY

Engineers—Fabricators
Erectors
Structural Steel
BRIDGES and BUILDINGS

General Office
and Shops
PHOENIXVILLE, PA.

Subsidiary—Barium Steel Corporation

"GUNITE" CONCRETE
(Since 1915)

FOR • STEEL PLATE LINING • STEEL ENCASEMENT • BUILDING NEW WALLS • LINING WATER RESERVOIRS, TUNNELS AND SEWERS • PLATE LINING OF STEEL STACKS, BUNKERS, DUCTS • REPAIR OF DISINTEGRATED CONCRETE AND MASONRY • CANAL, DITCH AND DRAIN LINING

GUNITE CONCRETE & CONST. CO.
1301 Woodswether Rd., Kansas City 6, Mo.

District Branch Offices

Paul B. Watts, 228 N. LaSalle St., Chicago 1, Ill.
George R. Lewis Co., 2036 Queen Ave. S., Minneapolis 5, Minn.
B. H. Mueller Co., 6625 Delmar Blvd., St. Louis 5, Mo.
Otis K. Olson Co., 823 Perdido St., New Orleans, La.
Philip D. Barnard, 2036 Addison, Houston 3, Tex.
Western Steel Prod. Co., 1755 W. 13th Ave., Denver 4, Colo.

New product briefs . . .

Darco Industries Inc., Culver City, California has set up a record for continued use of a tap—8,000 times—and the credit goes to **Lubri-Cut, a new tap and drill lubricant.** The tool performed blind hole tapping of standard threads to a class 3 tolerance in aluminum alloy castings and the manufacturer says that it works effectively for most machining operations on all ferrous and non-ferrous metals, plastics and glass. **Tap & Drill E-Z Corp., El Segundo, California.**

The **automatic program controller** is a simple, accurate device for controlling the feed of chlorine at predetermined rates for predetermined periods in identical cycles to meet variations in chlorine demand. Made by **Builders-Providence, Inc., 345 Harris Avenue, Providence 1, Rhode Island,** it consists of a simple, cam-operated pressure valve arranged so as to transmit varying pressures to the lower diaphragm pressure chamber of the chlorine control valve in a Chlorinizer. These cams are interchangeable with ease to meet the many variables encountered in chlorine demand and dosage. All major elements in the controller are self-contained in a dustproof case for panel, wall, or floor stand mounting.

A new type of **electric ceiling ventilator** is now being produced by **Indola N. V. Westeinde 86, Voorburg, Netherlands.** It's provided with a small switching apparatus for adjusting the ventilator to five different speeds as well as on and off. Switchbox holds a choke coil instead of the customary condenser and the motor has a two-wire instead of three-wire connection allowing use of normal light mains. It comes with three different lengths of propeller blades, made of transparent synthetic resin to avoid shadows and resist effects of tropical climates.

Proportioning weir tanks for solutions or suspensions consist of specially constructed tanks incorporating a stilling chamber, an accurately machined rectangular weir, two outlet chambers and a flow splitter, so arranged that the total flow of solution or suspension to the two outlets can be readily divided into any proportion. The instantly adjustable flow splitter is graduated into percent of total flow and has no moving parts. **Omega Machine Company, 345 Harris Avenue, Providence 1, Rhode Island** says that it may be fitted with a pneumatic or electric operator and is ideal for controlling the flow of liquids or suspensions in proportioning systems or automatic pH control systems.

PUBLICATIONS

Explosion-Proof Motors—Construction details of Allis-Chalmers explosion-proof, fan-cooled and non-ventilated motors are described in a new bulletin released by the company. Type APZZ, available in ratings of 3 to 100 hp, are fan-cooled. Type APKK, non-ventilated units, are available in fractional rating hp from ½ to 2. Bulletin number is 51B7286A, and is available from ALLIS-CHALMERS MANUFACTURING CO., 1018 S. 70TH STREET, MILWAUKEE, WISCONSIN.

V-Drive selections—Receive practical aid from the Fort Worth Engineering guide #50-A. Simple formulas for standard quarter-turn and V-flat drives are augmented by tables of drives in all belt sections which have been compiled for quick selection of drives of required ratio and speed. FORT WORTH STEEL & MACHINERY COMPANY, BOX 1038, FORT WORTH, TEX.

Sandsteel springs—Engineers, designers and manufacturers of products using flat springs as a power source will welcome this multi-colored 20-page brochure, "Sandsteel Springs for Dual Power." Charts point up the difference in performance of three qualities of springs—spiral, flat reverse tempered and crosscurved. One section is devoted to manufacture of the steel necessary for springs. Of special value to spring users is a section covering tool making, materials, heat treating, setting, crosscurving, testing, size of orders and cost factors. SAND-STEEL SPRING DIVISION, SANDVIK STEEL, INC., 145 HUDSON STREET, NEW YORK 13, N. Y.

Hardfacing wall chart—Detailing the proper hardfacing rod for the job is 17x26 in with tabs attached for easy hanging. Welding is divided into basic operations, listing equipment parts to be Amscoated together with the recommended rod, available sizes and preferred method of application. To keep it readable under shop conditions, the chart has a lacquered surface. AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., CHICAGO HEIGHTS, ILL.

Traffic concrete—Production and advantages of Dynapakt, a high density, hard topping are related in this 20-page illustrated bulletin. A step-by-step comparison of Dynapakt low-water ratio methods as opposed to wet mixes is included. FLASH-STONE CO., 3723 PULASKI AVE., PHILADELPHIA 40, PA.

ADVERTISERS IN THIS ISSUE

Aero Service Corp. 78
American Bitumuls & Asphalt Co. 28
American Cast Iron Pipe Co. 112
American Int'l Underwriters 48
American Steel & Wire Co. 8, 9
Armco Drainage & Metal Prod. Inc. 18

Baldwin-Lima-Hamilton Corp. 34, 35
Blackhawk Mfg. Co. 32
Blaw Knox Div., Blaw Knox Co. 52
Bruning Co., Inc., Charles 37
Brunner & Lay, Inc. 47
Brunson Instrument Co. 41
Buchanan Lumber Co. 114
Buda Co., The 116
Buff & Buff Mfg. Co. 125
Butler Bin Co. 90

Casey & Case Foundation Co. 43
Cast Iron Pipe Research Assoc., Inc. ..12, 13
Caterpillar Tractor Co. 16
Ceco Steel Products 58
Celotex Corp., The 89
Cement Gun Company 60
Chicago Bridge & Iron Co. ..... 2nd Cover
Chrysler Corp., Industrial Engine Div. 56, 57
Clearprint Paper Co. 59
Cole Mfg. Co., R. D. 125
Concrete Surfacing Mach. Co. 47
Continental Steel Corp. 41
Cummins Engine Co. 53

Ellicott Machine Corp. 54
Erie Steel Construction Co. 43
Euclid Road Machinery 7

Fate-Root-Heath Co. 110
Franki Foundation Co. 55
Fuller Mfg. Co. 77

Gar Wood Industries, Inc. Findlay Div. 74, 75
Granco Steel Products Co. 45
Griffin Wellpoint Corporation 29
Gunite Concrete & Construction Co. 134

Harnischfeger Corporation 133
Hayward Company 125
Heltzel Steel Form & Iron Co. 14
Hendrix Mfg. Co. 42
Huber Mfg. Co., The 122
Hyatt Bearings Div., G.M.C. 46

International Harvester Co. 4, 5

Jaeger Machine Co. 128
Johnson Co., C. S. 63

Keasby & Mattison Co. 33
Keuffel & Esser Co. 80, 81
Koehring Co., The 63
Kwik-Mix Co. 62, 63

LaPlant-Choate Mfg. Co. 1
Layne Bowler 88
LeTourneau, Inc., R. G. 86, 87
Leupold & Stevens Instruments Inc. 2
Lewis & McDowell, Inc. 43
Lidgerwood Ind., Inc. 61
Lincoln Electric Corp. 121
Lufkin Rule Co. 31

Marion Power Shovel Co. 15
Master Vibrator Co. 92
McGraw-Hill Book Co. 64
Moretrench Corp. 71
Morse-Starrett Products Co. 134

Nat'l. Clay Pipe Mfgrs., Inc. 40

Owen Bucket Co. 131

Parsons Co. 63
Permutit Co., The 39
Phoenix Bridge Co. 134
Pittsburgh-Des Moines Steel Co. 65
Plasteel Products Co. 38

Quaker State Oil Refining Corp. 10

Raymond Concrete Pile Co. ..... 3rd Cover
Reynolds Metal Co., Inc. 109
Robertson Co., H. H. 115
Roebling's Sons Co., John A. 82
Rollway Bearing Co., Div. Lipe-Rollway Corp. 85

Sauerman Bros., Inc. 38
Simplex Valve & Meter Co. 30
Smith & Co., D. B. 30
Smith Co., S. Morgan 72
Spencer, White & Prentis, Inc. 125
Sprague & Henwood, Inc. 114
Standard Dry Wall Products 20
Standard Steel Works 55
Symons Clamp & Mfg. Co. 132

Taylor Forge & Pipe Works 6
Timber Engineering Co. 129
Timken-Detroit Axle Co. 49, 50
Timken Roller Bearing Co. ..... 4th Cover
Trailer Village, Inc. 114

Unit Crane & Shovel Corp. 127

Walker Cement Products Co. 11
Wellman Engineering Co. 60
White Co., David 91
Winslow Gov't. Standard Scale Works, Inc. 47
Wood Co., R. D. 3

Yeomans Brothers Co. 130

PROFESSIONAL SERVICES . . . 93-95

SEARCHLIGHT SECTION

(Classified Advertising)

H. E. Hilty, Mgr.

Employment
Positions Vacant 95, 96
Selling Opportunities Offered 96
Positions Wanted 97
Part Time Work 97
Employment Services 96

Educational
Schools 97
Tutoring 97

Business Opportunities
Offered 97

Notices
Proposal 104, 105, 106

Property
For Sale 97

Equipment
(Used or Surplus New)
For Rent 101
For Sale 97-103
Piling 103
Pipe 103
Rail 102
Surveying Instruments 97

Wanted
Equipment 97

ADVERTISERS INDEX 106

ENGINEERING NEWS-RECORD

HOWARD T. OLSEN, *Assistant Manager* — D. S. ROBERTSON, *Adv. Sales Manager*

J. G. JOHNSON, *Business Manager*

Sales Representatives: M. J. Storz and E. A. Callahan, Jr., 330 W. 42nd St., *New York;* F. G. Hudson, L. H. Hunt, W. G. Payne, 520 N. Michigan Ave., *Chicago;* R. E. Dorland, 68 Post St., *San Francisco;* A. B. Cozzens, 17th & Sansom Streets, *Philadelphia;* E. E. Duff, Jr., Hanna Bldg., *Cleveland;* B. F. Horn, Penobscot Bldg., *Detroit;* W. F. Donnell, Continental Bldg., *St. Louis;* H. L. Keeler, 1111 Wilshire Bldg., *Los Angeles;* R. C. Maultsby, Rhodes-Haverty Bldg., *Atlanta;* James Cash, First National Bank Bldg., *Dallas. Other Sales Offices:* 738-39 Oliver Bldg., *Pittsburgh;* 1427 Statler Bldg., *Boston;* Aldwych House, *London.*

EDITORIALS

Success on the Missouri

IT WILL BE DIFFICULT for the chronic critics of the Corps of Engineers to find fault with their handling of the Missouri River flood emergency. The levees and floodwall they designed to protect Omaha and Council Bluffs held against pressures at the limits of their safety factors. The Corps' know-how in marshalling and directing a flood-fighting organization of engineers, contractors and local residents paid off in strengthening the danger spots and saving lives. Downstream, the smaller levees functioned as they were supposed to, and at Kansas City the embankments and floodwalls damaged by last summer's flood had already been repaired and were ready to channel the Missouri safely through the city.

It was a praiseworthy performance throughout, the more so because the three upstream reservoirs, whose 10,250,000 acre-ft of storage is the key to the Army Engineers flood control program, were not yet in service. One of them, Garrison, might have been if Congress had not cut its appropriations. The same lack of funds has plagued the Bureau of Reclamation on its tributary dams which could have held back some runoff into the mainstream.

The lesson is clear. If Congress and the people in the Missouri Valley want the effective flood control that the Pick-Sloan plan promises, they will have to pay for it. Looking for an easy way out in further studies, in jurisdictional reorganization or in gambles on levee systems alone can only lead to disappointment. Success on the Missouri requires no more than a resolve to carry out the flood-control steps that have already been charted.

Extravagant and misleading

THE HEADY ATMOSPHERE of a presidential election year has apparently proved too much for the news service of the U. S. Chamber of Commerce. In any event, in attempting to reinforce the Chamber's fight to exact a cut of $5.8 billion from the President's $10.8 request for foreign aid funds, the news service has put out a release that few governmental propagandists could exceed in extravagant and misleading statements.

The release says that "billions of U. S. tax dollars are going into a gigantic waterways system in France, one feature of which is to provide a 354 mile seaway from the Mediterranean to Lake Geneva, 1230 ft above sea level in the heart of the Swiss Alps." It also says that these facilities are being paid for in counterpart funds which "might be described as U. S. dollars forced into French citizenship."

Neither of these statements gives a fair or accurate picture of the situation. Readers will recognize this so-called "seaway to the Swiss Alps" as the development of the Rhone River for power and navigation, which has been described accurately and rather completely in this journal. It is true that a lock appeared on the early architectural renderings of Genissiat Dam (the one highest up on the river and near Lake Geneva), but this disappeared from the drawings when the project reached the construction stage in 1937, and was in fact never considered very seriously. The power dam (ENR June 24, 1948 p. 82), largest in Europe, was completed in 1949 with French appropriations—counterpart funds appearing only in the later phase of transmission line construction, and thus in small amount. It is also surprising to hear that an elevation of 1230 ft is "the heart of the Swiss Alps."

The actual "seaway" part of the Rhone work is far down stream and is headed only for the large commercial city of Lyon, el. 530 ft. (ENR July 31, 1947, p. 6 and Nov. 22, 1951, p. 30). The first lock has been completed at Mondragon a considerable distance below Lyon and, for this and the power dam and navigation channel, just $33 million of counterpart funds has been expended as against a total cost of $150 million. This is a far cry from "billions of U. S. tax dollars."

Moreover, counterpart funds can only misleadingly be described as "U. S. dollars forced into French citizenship." They are French funds that match the amount of U. S. dollars that are spent on the French account. But the important point is that the U. S. dollars are spent in the U. S. for products to be given the French. They may subsidize France, but they also subsidize American manufacturers, who pay back a not inconsiderable part of the dollars in taxes.

It is a commendable effort on the part of the U. S. Chamber of Commerce to fight the government's free spending ways and to keep our foreign aid on a sane basis. But the national interest is not served by using the same type of extravagant and misleading language as the opposition. Come out fighting, but don't hit below the belt.

Watch the building designer

A NEW SPIRIT OF PROGRESS is abroad in the field of tall building designing. Seeking lightweight in walls and floors, it is finding expression in such things as stainless steel, aluminum, glass, pumice concrete, vermiculite plaster and cellular steel panels. Notable examples are to be found in Lever House in New York, described in this issue, in the Alcoa and Gateway Center buildings in Pittsburgh, in the General Petroleum and Prudential Life Buildings in Los Angeles and the United Nations buildings in New York.

The designers of these new buildings have set a pace that other architects and structural engineers will hardly fail to follow. An exicting new era could well be in store for the skyscraper, neglected these past twenty years.

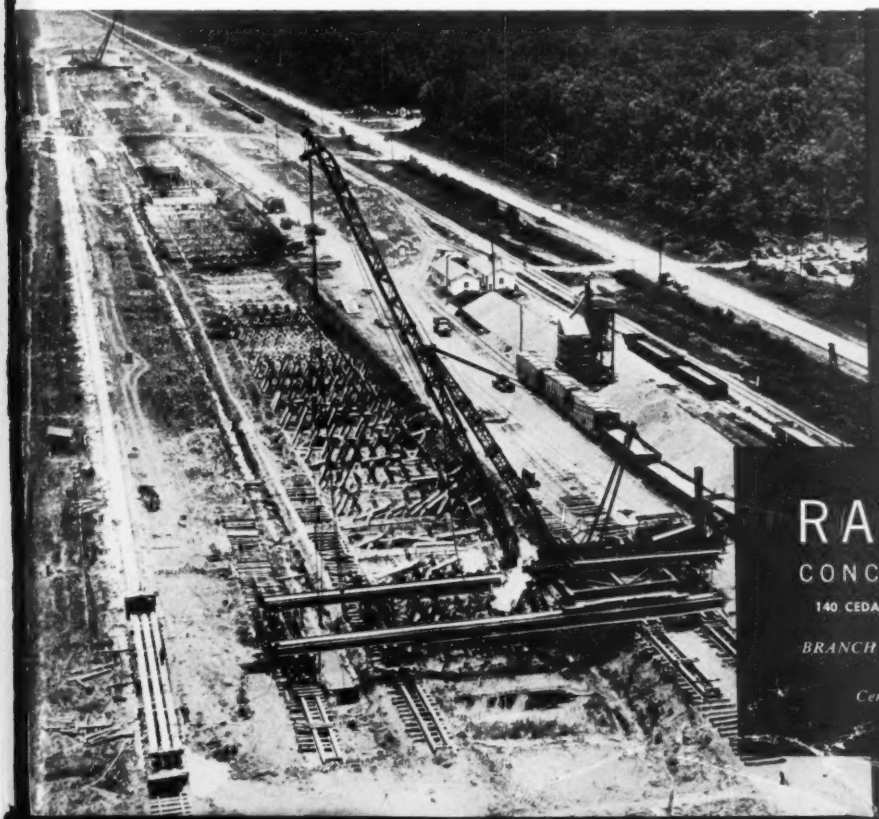
GIANT MORGANZA FLOOD CONTROL JOB

COMPLETED 3 MONTHS AHEAD OF SCHEDULE!

DRIVING FOUNDATION PILES for the gated portion of Morganza, La., Floodway Control Structure is one of the outstanding pile jobs of the year. Skilled planning of operations and use of two of the largest pile drivers ever built have enabled Raymond to complete this work three months ahead of schedule. Structure is supported on 3,734 precast concrete piles 80 to 118 feet in length—practically all driven on a batter.

AROUND THE WORLD · FOUNDED 1897 ·

Design and Construction under Supervision of
COL. CHARLES E. HOLLE, U.S.A., *District Engineer,*
New Orleans District, Corps of Engineers
Department of the Army.



THE SCOPE OF RAYMOND'S ACTIVITIES . . .

Soil Investigations, Pile and Caisson Foundations, Underpinning, Harbor and River Improvements and Lining of Steel and Concrete Pipelines by the Centrifugal and Pole Processes.

RAYMOND
CONCRETE PILE CO.
140 CEDAR STREET • NEW YORK 6, N. Y.

BRANCH OFFICES in the Principal Cities of United States and Central and South America.

More speed on new highway—with TIMKEN® bearings in scraper and tractors

THE three Caterpillar units below are working on the relocation of U.S. Highway 50 near Guysville, Ohio. In all three units—DW21 tractor (pulling), 21 scraper, and D8 tractor (pushing)—vital moving parts are mounted on Timken® tapered roller bearings.

With Timken bearings in this equipment, the contractor has extra insurance that the job will keep moving along on time. Timken bearings make closures more effective by keeping shafts concentric with housings; dirt and dust stay out, lubricant stays in. Timken bearings take heavy shock loads with capacity to spare. Due to smooth surface finish and case-hardened bearing surfaces, wear within Timken bearings is negligible. Since Timken bearings take both radial and thrust loads, they hold related parts in proper alignment, preventing wear.

As a result, time out for maintenance and repair of equipment is minimized. The machines stay on the job.

The construction equipment you build or buy should have the advantages that Timken bearings make possible. Be sure its bearings carry the trade-mark "Timken". The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.

CATERPILLAR TRACTOR CO. mounts the DW21 tractor, 21 scraper and D8 tractor on Timken bearings for smooth, dependable performance.

FINISHED TO CLOSER TOLERANCES

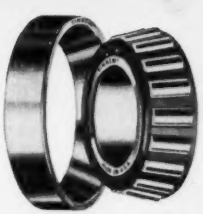
Finishing to incredible smoothness accounts for much of the precise, smooth rolling performance of Timken bearings. This honing operation is typical of the amazingly accurate manufacturing methods at the Timken Company.

The Timken Company is the acknowledged leader in: 1. advanced design; 2. precision manufacturing; 3. rigid quality control; 4. special analysis steels.

TIMKEN

TRADE MARK REG. U.S. PAT. OFF.

TAPERED ROLLER BEARINGS



NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPE ▭ ROLLER ▭ BEARING TAKES RADIAL ◫ AND THRUST ◫ LOADS OR ANY COMBINATION ✳